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The Economic and Budget Outlook: Fiscal Years 1988-1992

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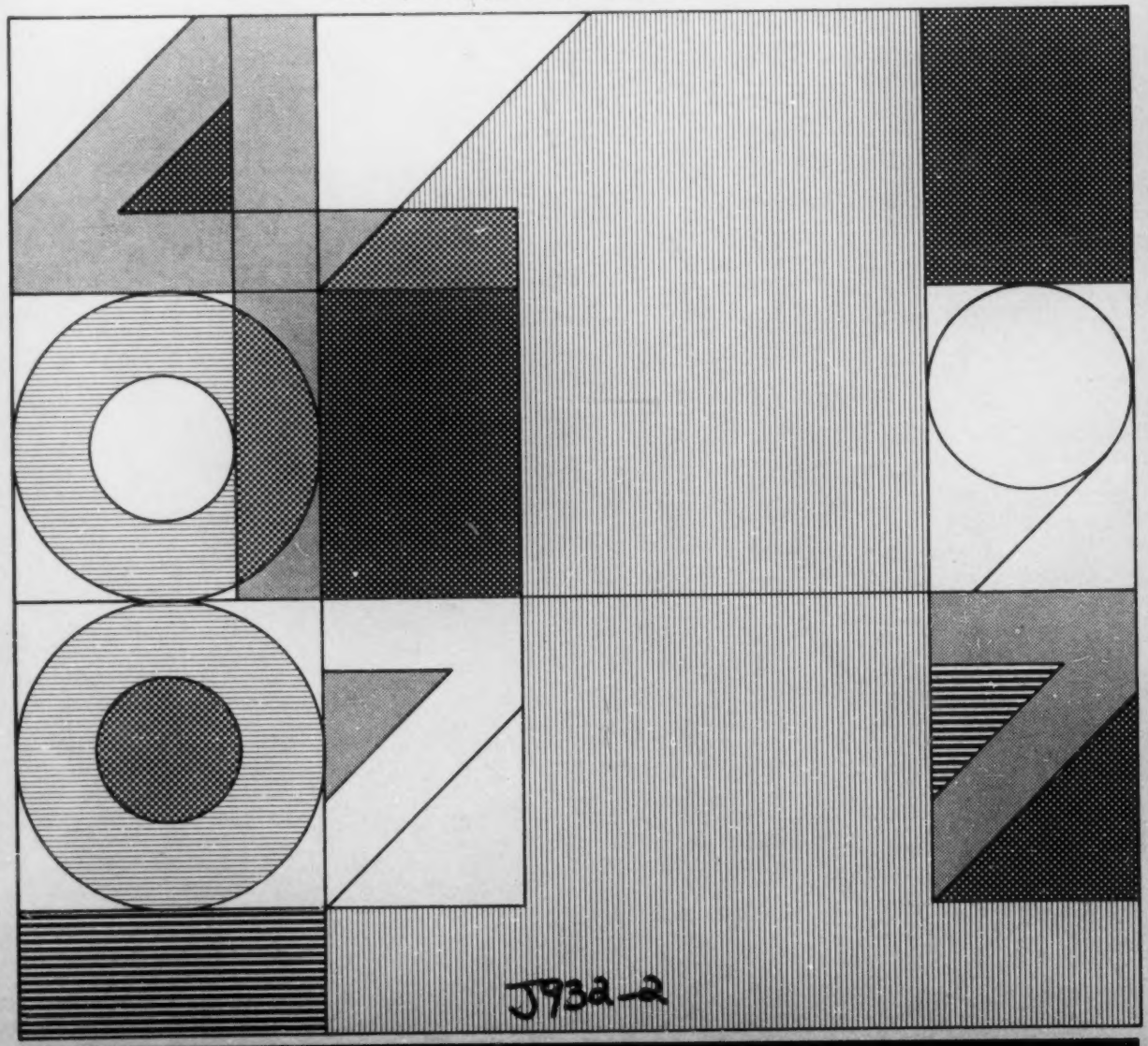

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1987 ANNUAL REPORT

THE ECONOMIC AND BUDGET OUTLOOK:

FISCAL YEARS 1988-1992

The Congress of the United States
Congressional Budget Office

NOTES

Unless otherwise indicated, all years referred to in this report are calendar years.

Unemployment rates throughout the report are calculated on the basis of the civilian labor force.

Details in the text and tables of this report may not add to totals because of rounding.

Figures showing periods of recession (indicated by a shaded area) reflect the peak (P) and trough (T) of the recession.

The CBO forecast was prepared in December 1986, and does not incorporate either the January 1987 revisions of the household employment survey data or the January 22, 1987 release of national income data for the fourth quarter of 1986.

The Balanced Budget and Emergency Deficit Control Act of 1985 is also referred to in this volume more briefly as the Balanced Budget Act.

PREFACE

This volume is one of a series of reports on the state of the economy and the budget issued periodically by the Congressional Budget Office (CBO). In accordance with CBO's mandate to provide objective and impartial analysis, the report contains no recommendations.

The analysis of the economic outlook presented in Chapter I and the analysis of economic growth in Chapter III was prepared by the Fiscal Analysis Division under the direction of William J. Beeman and Jacob S. Dreyer, with the assistance of Trevor Alleyne, John Canally, Suzanne Cooper, Robert A. Dennis, Victoria S. Farrell, Douglas R. Hamilton, George R. Iden, James Kiefer, Steve Parker, John F. Peterson, Martin A. Regalia, Frederick C. Ribe, Frank S. Russek, Jr., Matthew A. Salomon, John R. Sturrock, Eng Meng Tan, Helena Tang, Stephan S. Thurman, and Bragi Valgeirsson.

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SUMMARY

Despite the record high federal budget deficit for fiscal year 1986, a continuation of current policy would imply substantially lower budget deficits in coming years. The Congressional Budget Office (CBO) projects that the baseline federal deficit will decline from $221 billion in 1986 to $174 billion in 1987, $169 billion in 1988, and $85 billion in 1992. In relation to gross national product (GNP), the deficit is projected to decline from 5.3 percent of GNP in 1986 to 3.6 percent in 1988 and 1.4 percent in 1992.

These budget projections are contingent on CBO's forecast of a moderate pickup in economic growth from its subdued pace in 1986, and a modest decline in both short-term and long-term interest rates over the projection period from their average levels in 1986. They also assume that current taxing and spending laws remain unchanged and that both defense and nondefense discretionary appropriations are held to zero real growth. The budgetary outlook and the economic assumptions underlying the forecast are presented in Summary Table 1.

The economic expansion has now entered its fifth year. Over the four quarters of 1986, the economy grew at a 2½ percent rate--about the same as in 1985 but substantially below its growth in the first two years of recovery. Unemployment in 1986 was slightly below that of 1985 but still averaged 7.0 percent. Total employment grew rapidly, however, by about 2.3 percent. Most of the new jobs were still in the service-producing sector. There was a continuing weakness in the goods-producing sector, at least partially attributable to the widening trade deficit. Inflation decreased in 1986, especially as measured by the Consumer Price Index (CPI), largely because of the precipitous decline in oil prices at the beginning of the year. Despite the continuing depreciation of the dollar against most other currencies, prices of imports did not move up as sharply as many forecasters had anticipated. Interest rates--especially long-term rates--fell considerably as a result of the easing of inflation, the sluggish growth of the economy, and the expectation of lower federal deficits.

CBO forecasts a moderate pickup in economic activity in 1987 and 1988. Real GNP is expected to grow just under 3 percent annually. Like most other forecasters, CBO anticipates that the trade sector will be the

SUMMARY TABLE 1. BASELINE BUDGET PROJECTIONS, DEFICIT TARGETS, AND UNDERLYING ECONOMIC ASSUMPTIONS

	Actual 1986 a/	1987	1988	1989	1990	1991	1992
Budget Projections (By fiscal year, in billions of dollars) b/							
Baseline Estimates							
Revenues	769	834	900	962	1,050	1,138	1,220
Outlays	990	1,008	1,069	1,124	1,184	1,247	1,305
Deficit	221	174	169	162	134	109	85
Deficit Targets	172	144	108	72	36	0	n.a.
Baseline Less Targets	49	30	61	90	98	109	n.a.
Economic Assumptions (By calendar year)							
Nominal GNP (percent change)	5.4	6.0	6.9	7.2	7.4	7.0	6.8
Real GNP (percent change)	2.6	2.8	3.0	3.0	3.1	2.7	2.5
CPI-W (percent change)	1.6	3.5	4.3	4.3	4.3	4.3	4.3
Civilian Unemployment Rate (percent)	7.0	6.6	6.5	6.3	6.1	6.0	6.0
Three-Month Treasury Bill Rate (percent)	6.0	5.6	5.7	5.6	5.5	5.3	5.2

SOURCE: Congressional Budget Office

NOTE: n.a. = not applicable.

a. 1986 data for nominal and real GNP and the CPI-W are CBO estimates. The estimates do not reflect the actual data for the fourth quarter of 1986, scheduled for release on January 22, 1987.

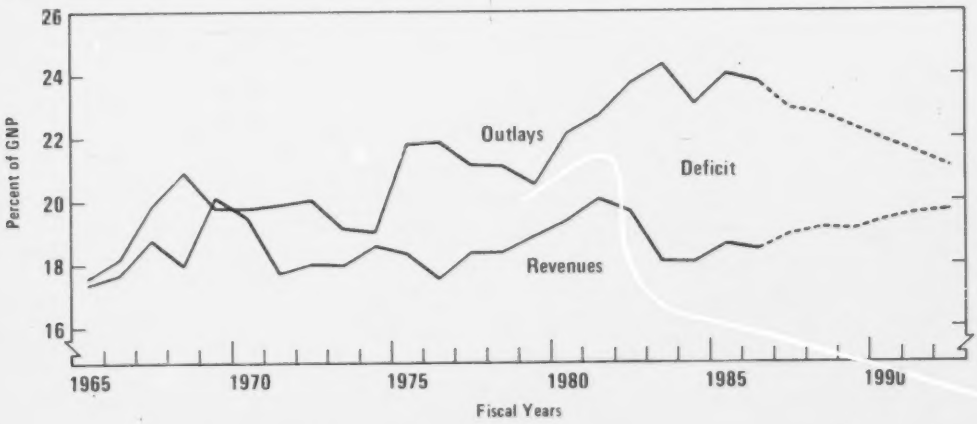
b. The baseline estimates and deficit targets include Social Security, which is off-budget.

major contributor to the stronger growth, which should bring unemployment down to an average of 6.6 percent in 1987 and 6.5 percent in 1988.

CBO's forecast calls for a fairly substantial rise in reported inflation, from 2½ percent in 1986 (as measured by the implicit GNP deflator) to about 3.7 percent in 1987-1988. On the consumer level, CBO sees inflation rising from the artificially depressed rate of 1 percent, to 1½ percent in 1986, to almost 4½ percent in 1987 and 1988. The rise in inflation will reflect, among other things, somewhat higher oil prices and rising import prices caused by the falling dollar. Interest rates in 1987 and 1988 are expected to average near their present levels.

Under these economic assumptions, CBO projects a sharp decline of the baseline budget deficit in 1987 and a further moderate reduction in 1988. About half of the expected decline in the 1987 deficit results from one-time factors, including an increase in revenues under the Tax Reform Act of 1986, asset sales, and shifts of outlays into adjacent years. After 1987, revenues under current laws are projected to grow at an annual rate of nearly 8 percent--slightly faster than GNP--while baseline outlays grow only 5 percent per year, which is substantially below the 10 percent annual growth rate experienced earlier in the 1980s and less than the projected growth in the economy (see Summary Figure 1).

Summary Figure 1.
Baseline Revenues and Outlays



SOURCES: Congressional Budget Office; Office of Management and Budget; Department of Commerce, Bureau of Economic Analysis.

Baseline budget deficits, although declining throughout the projection period, exceed by large amounts the targets established by the Balanced Budget and Emergency Deficit Control Act of 1985. The 1988 deficit would have to be cut $61 billion below the baseline in order to reach the goal of $108 billion. For fiscal years 1989 through 1991, the baseline deficit averages about $100 billion over the statutory targets (see Summary Table 1).

THE ECONOMIC OUTLOOK

Economic growth in 1986 turned out to be weaker than most forecasters had anticipated, mainly because of sluggishness in the manufacturing sector. Domestic demand remained fairly strong, growing about one percentage point faster than output. Growth of personal consumption, which accounts for about 65 percent of GNP, was faster than in the preceding year. Residential construction was also stronger than in 1985. Business fixed investment, however, contracted during the year. Most important, real net exports continued their rapid deterioration; the widening of the trade deficit accounted for the divergence between the fairly strong growth of domestic demand and the weak growth of output.

The difficulties in the manufacturing sector seemed to lessen toward the end of the year, as indexes of industrial activity began pointing toward better times ahead. The rebound in oil prices in the second half of 1986 helped stem the decline in activity in the oil industry and its suppliers, although higher oil prices will mean greater difficulties for the economy over the longer run.

While the trade picture at year-end remained bleak, there were some indications that import prices had begun to respond to the prolonged and substantial depreciation of the dollar against major foreign currencies. This rise in import prices suggests that the decline in real net exports is likely to bottom out in the first half of 1987. Prospects for other components of demand are less buoyant. Business fixed investment is expected to remain lackluster, while growth in consumer spending, residential construction, and government purchases of goods and services is expected to be slower in 1987 than last year.

CBO's economic projection consists of two parts: a short-term forecast of economic conditions through 1988 contingent on specific policy and other crucial assumptions; and a medium-term projection for the period 1989 through 1992 based on historical trends and other assumptions about economic growth.

The Forecast for 1987-1988

CBO's two-year forecast, presented in Summary Table 2, is based on the following assumptions as to fiscal and monetary policy:

- Federal budget policies for fiscal year 1988 are assumed to be consistent with achieving the deficit targets specified in the Balanced Budget Act. Since the policies for that year are not known, CBO assumes equal across-the-board revenue increases and spending cuts, after incorporating an estimate for asset sales.

- The Federal Reserve Board is assumed to pursue a policy that would allow the monetary aggregate M2 to remain within its target range.

SUMMARY TABLE 2. THE CBO FORECAST FOR 1987 AND 1988

	Actual	Estimated	Forecast	
	1985	1986	1987	1988
Fourth Quarter to Fourth Quarter (percent change)				
Nominal GNP	6.3	5.1	6.5	7.1
Real GNP	2.9	2.5	3.0	2.9
Implicit GNP Deflator	3.3	2.6	3.4	4.0
CPI-W	3.2	1.1	4.4	4.4
Calendar-Year Averages (percent)				
Unemployment Rate	7.2	7.0	6.6	6.5
Three-Month Treasury Bill Rate	7.5	6.0	5.6	5.7
Ten-Year Government Bond Rate	10.6	7.7	7.2	7.2

SOURCES: Congressional Budget Office; Department of Commerce, Bureau of Economic Analysis; Department of Labor, Bureau of Labor Statistics.

In addition, the forecast assumes that:

- The world price of oil will be close to $15 per barrel through the end of 1988. 1/
- The exchange rate (as measured by the Federal Reserve Board index) will continue to decline, reaching by the end of 1988 a level about 10 percent below its level at the end of 1986.
- Food prices will rise by about 4 percent throughout the forecast period.

Given these assumptions, CBO expects real GNP to grow at about a 3 percent annual rate between the fourth quarters of 1986 and 1988. Inflation at the consumer level will rise in 1987-1988 to around 4½ percent from its exceptionally low level in 1986. But the increase as measured by the GNP deflator will be significantly less than as measured by the Consumer Price Index, primarily because import prices are excluded from the GNP deflator but not from the CPI. Civilian unemployment is forecast to average 6.6 percent in 1987, and to drop further in 1988 to around 6.5 percent. The interest rate on three-month Treasury bills should rise slightly in 1987 from current levels, while yields on 10-year Treasury bonds are expected to remain at their current levels.

Medium-Term Economic Projections

CBO's medium-term projections for 1989 through 1992 are not a forecast of economic conditions, but projections based on historical experience. These outyear economic projections are not predicated on specific budget policies, and may not be consistent with the budget policies now in place, nor do they assume any specific course of monetary policy. The major characteristics of the 1989-1992 projections are shown in Summary Figure 2.

- Real GNP grows at an average rate of 2.7 percent.
- Unemployment declines to about 6 percent in 1990 and remains near this level in subsequent years.

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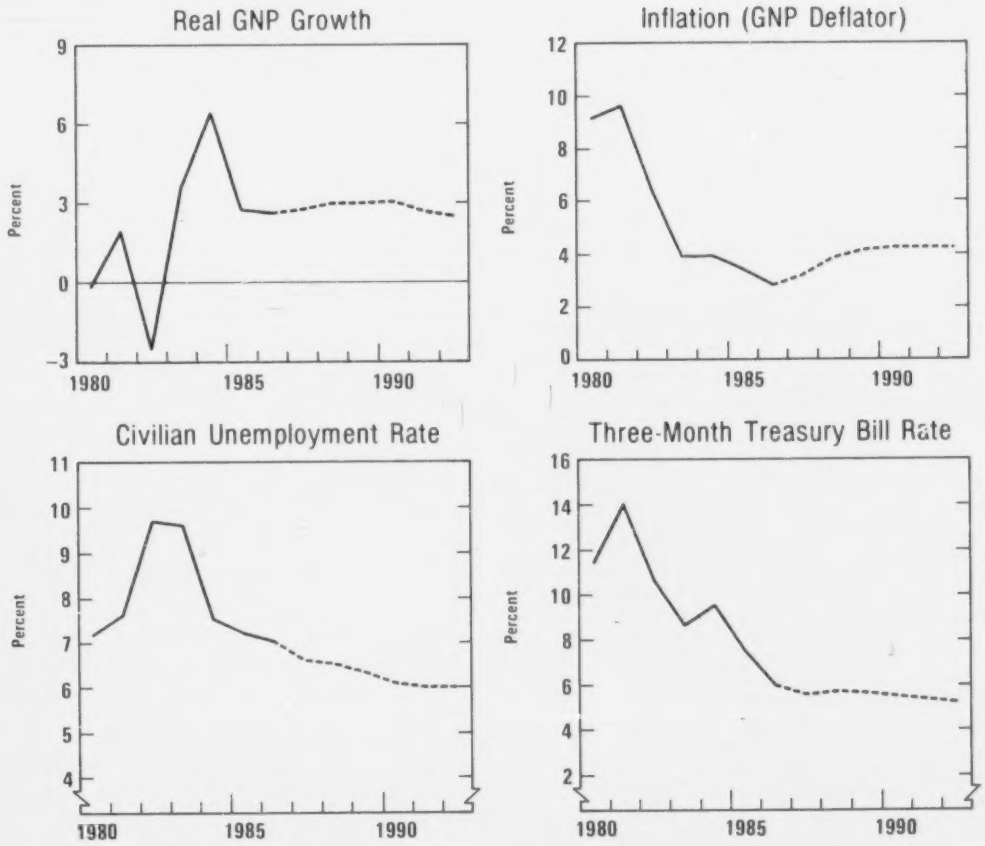
1. This assumption reflects the expectations of oil futures markets at the time the CBO forecast was completed in December 1986. Since then, as a result of an agreement by the OPEC countries to limit their production of oil, its price went up to the range of $18 to $19 per barrel. If these higher oil prices prevail, the CBO forecast will have understated the contribution of oil prices to higher inflation.

- Inflation, as measured by the CPI-W, holds at 4.3 percent throughout the projection period.

- Interest rates on short-term Treasury bills decline gradually to 5.2 percent by 1992, while rates on long-term Treasury bonds decline a bit more sharply to 5.6 percent by the end of the projection period.

Summary Figure 2.

Major Economic Assumptions



SOURCES: Congressional Budget Office; Department of Commerce, Bureau of Economic Analysis; Department of Labor, Bureau of Labor Statistics; Federal Reserve Board.

Uncertainty in the Outlook

While every economic forecast is subject to great uncertainty, a number of special factors combine to render forecasts made at this time particularly uncertain. Some fundamental uncertainties in the present forecast include:

- The impact on the economy of the shift in fiscal policy toward greater restraint, as mandated by the Balanced Budget Act;
- The economic impact of the Tax Reform Act of 1986, which changes the composition of federal receipts and substantially alters incentives for many economic activities;
- The ability of OPEC oil producers to maintain oil prices at their current levels; and
- The speed and strength of the response of exports and imports to the dollar depreciation.

THE BUDGET OUTLOOK

CBO's baseline budget projections reflect the new economic forecast and medium-term projections, the latest information on tax collections and spending patterns, and estimates of the effect of recently enacted legislation. As they did last year, the projections assume that both defense and nondefense discretionary appropriations are held constant in real terms and that current tax and entitlement laws are not changed. Under these assumptions, the deficit is projected to decline from $221 billion in 1986 to $85 billion in 1992 (see Summary Table 1). These budget projections will be updated as necessary in February to take account of information gained from the Administration's Fiscal Year 1988 Budget submission.

The 1988 baseline deficit exceeds the Balanced Budget Act's target by $61 billion. The deficit targets decline at a faster rate than the baseline in future years so that the gap between the baseline and the annual deficit targets grows to $109 billion by 1991. Under the Balanced Budget Act, the Congress could choose to meet the 1988 deficit target by across-the-board spending cuts referred to as sequestration. Under CBO's baseline assumptions, these cuts would have to be 14 percent for defense programs and 20 percent for nondefense programs from 1987 appropriations levels.

As the result of continuing budget deficits, debt held by the public is projected to grow from $1.7 trillion at the end of 1986 to over $2.5 trillion by the end of fiscal year 1992. The federal government's debt has grown

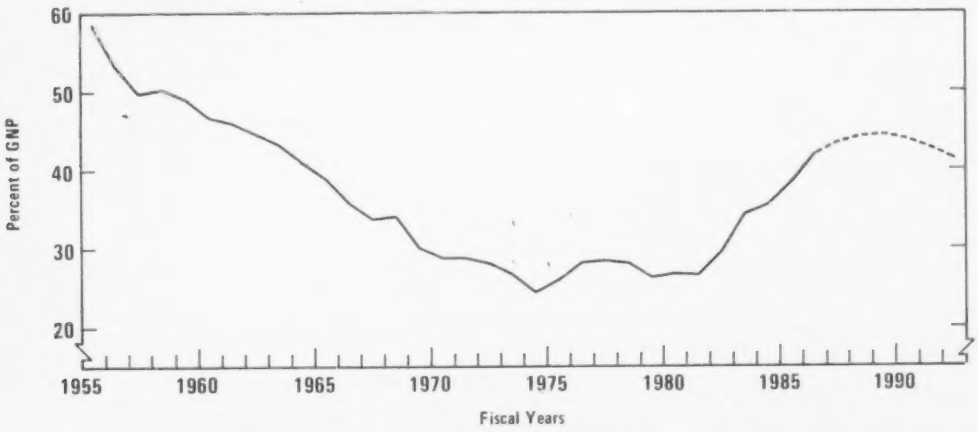
faster than the economy since the early 1980s, but CBO's baseline projections of declining deficits show an end to this trend. The ratio of debt to GNP under CBO's baseline assumptions peaks at 44 percent in the 1988-1990 period and then falls to 41 percent in 1992--very close to its current level (see Summary Figure 3). The decline in the debt-to-GNP ratio will obviously be sharper if the deficit targets of the Balanced Budget Act are met.

Changes in Baseline Projections

Projected baseline deficits for 1988-1991 are higher than projected by CBO last August despite the enactment of legislation in October to reduce spending and increase revenues. Under CBO's August 1986 economic and technical assumptions, the Omnibus Budget Reconciliation Act, the Tax Reform Act, and the continuing resolution for appropriations would have reduced the 1987 deficit to about $151 billion--within $10 billion of the Balanced Budget Act's target. But CBO's new economic and technical assumptions raise the 1987 deficit estimate to $174 billion. Moreover, most of the budget savings from enacted legislation last year were one-time savings. While the savings attributable to legislation were $32 billion in

Summary Figure 3.

Federal Debt Held by the Public



SOURCES: Congressional Budget Office; Office of Management and Budget; Department of the Treasury; Department of Commerce, Bureau of Economic Analysis.

NOTE: The values shown for the 1987-1992 fiscal years are consistent with the CBO baseline.

1987, the annual savings average only $6 billion in 1988-1991 (see Summary Table 3).

Revised economic assumptions add to the deficit by amounts growing from $10 billion in 1987 to $25 billion by 1991. Lower levels of nominal GNP and changes in the composition of national income cause estimated revenues to be lower by amounts growing from $13 billion in 1987 to $22 billion in 1991. Lower projected interest rates, however, reduce debt-service costs and attenuate somewhat the budgetary effect of lower revenues.

Technical reestimates, primarily on the spending side, increase the projected deficits substantially in all years. Medicaid and Medicare spending in 1986 exceeded expectations; this growth is expected to continue, adding $3 billion to spending in 1987 and $7 billion by 1991. Changes in the outlook for U.S. agricultural exports and other factors increase outlays for farm price supports by $3 billion in 1987 and about $6 billion per year in the 1988-1991 period. Revised defense spending estimates add less than $1 billion to 1987 outlays but about $3 billion per year thereafter. Projected outlays have also risen by an average of $1½ billion per year for unemployment compensation and $1 billion per year for assistance payments

SUMMARY TABLE 3. CHANGES FROM CBO AUGUST BASELINE DEFICIT PROJECTIONS (By fiscal year, in billions of dollars)

	1987	1988	1989	1990	1991
CBO August 1986 Baseline Deficit	184	150	127	96	69
Enacted legislation	-32	-9	a/	-5	-10
Revised economic assumptions	10	11	15	19	25
Technical reestimates	13	17	20	24	25
CBO January 1987 Baseline Deficit	174	169	162	134	109

SOURCE: Congressional Budget Office.

a. Less than $500 million.

and Supplemental Security Income. Those increases reflect recent spending experience. Finally, based on spending plans of the Federal Deposit Insurance Corporation and the Federal Savings and Loan Insurance Corporation, estimated federal assistance to troubled financial institutions will grow by more than $4 billion in 1987.

Uncertainty of Budget Estimates

The changes in the baseline deficit projections because of revised economic assumptions and technical reestimates demonstrate the uncertainty of budget estimates. Relatively small changes in the economic outlook can have major implications for the budget deficit. For example, an increase of one percentage point in all government interest rates would increase the deficit by $11 billion in 1988 and $26 billion in 1992.

Significant changes in the estimates can also occur for reasons unrelated to the health of the overall economy. For example, unexpected increases in the cost of farm price supports, federal health programs, financial deposit insurance programs, and unemployment compensation have added $12 billion to CBO's estimate of the 1987 deficit since last August. In recent years, errors in technical estimating assumptions have caused the targets in first Congressional budget resolutions to differ from actual deficits by an average of $17 billion. Although technical estimating errors of this size are relatively small percentages of spending and revenues, the same errors are larger as a percent of the deficit.

CHAPTER I

THE ECONOMIC OUTLOOK

In 1986, the economy continued to grow at the moderate pace set in 1985. Despite reductions in interest rates, oil prices, and the international value of the dollar early in the year, the economy's growth over the four quarters of 1986 was slightly below that of 1985. Domestic demand for goods and services registered relatively strong growth, but an increasing share of the rising demand was met by foreign producers. This foreign competition restrained the growth of domestic economic activity, particularly for manufacturers. By the end of 1986, however, industrial production and employment appeared to be improving, and most forecasters were anticipating a turnaround in foreign trade.

The Congressional Budget Office (CBO) forecasts slightly higher real growth in the next two years. This forecast depends crucially on a substantial reduction in the trade deficit. CBO also projects somewhat higher inflation, accompanied by steady interest rates and a gradual decline in the rate of unemployment from its 1986 level.

THE CBO ECONOMIC FORECAST AND MEDIUM-TERM PROJECTIONS

The Congressional Budget Office's economic projection has two parts: a short-term forecast of economic conditions through 1988 contingent on specific policy assumptions; and a medium-term projection through 1992 based on historical trends and other assumptions about economic growth.

The Short-Term Forecast

The CBO short-term forecast calls for continued expansion over the next two years at a rate somewhat higher than the past two years. This forecast is based on specific assumptions for fiscal and monetary policy:

- Federal tax and spending policies for fiscal year 1988 are assumed to satisfy the deficit requirements of the Balanced Budget Act.

Since the policies for that year are not known, CBO assumes equal across-the-board revenue increases and spending cuts, after incorporating an estimate of asset sales.

- The Federal Reserve is assumed to follow a policy that would allow M2 to remain within its target range.

The CBO forecast also assumes that:

- The world price of oil will be close to $15 per barrel through the end of 1988. This assumption was based on futures market prices at the time the forecast was prepared in December 1986. Since that time, oil prices have risen to the range of $18.00 to $19.00 per barrel. If these higher oil prices prevail, the CBO projection will have understated the contributions of energy prices to inflation in 1987.

- The exchange rate (the Federal Reserve Board index) continues to decline, though at a much slower rate than over the past year, reaching by the end of 1988 a level about 10 percent below its average at the end of 1986.

- Food prices rise by about 4 percent throughout the forecast period.

Given these assumptions, CBO expects that real gross national product (GNP) will grow at about a 3 percent annual rate between the fourth quarters of 1986 and 1988 (see Table I-1). Although the growth rate will not be constant over this period, there is no basis on which to predict any particular pattern of growth over the forecast period. Inflation at the consumer level is expected to rise to around 4½ percent, since the special factors (falling prices for oil, agricultural goods, and other commodities) that depressed inflation in 1986 below its underlying rate will not recur, and higher prices for oil and other imports will begin to affect domestic prices. The increase in inflation as measured by the GNP deflator is expected to be significantly less than that measured by the Consumer Price Index (CPI) because import prices are excluded from the GNP deflator but not from the CPI, and because oil has a lower weight in the GNP deflator. 1/ The

1. The CPI is published in two versions: the CPI-W for urban wage earners and clerical workers, shown in the projections in Tables I-2, I-3, and I-4; and the CPI-U for all urban consumers, which appears in the discussion of inflation later in this chapter.

unemployment rate is expected to average 6.6 percent in 1987, a small decline from its average in 1986; in 1988, it is expected to drop further to around 6.5 percent. Although the interest rate on three-month Treasury bills is projected to rise slightly in 1987 from current levels, the increase is expected to be less than the rise in inflation. Yields on 10-year Treasury bonds are forecast to remain at or near current levels. As a result, real interest rates decline in the forecast period.

The outlook for domestic spending offers little to support a projection of strong economic growth. Consumer spending will probably not be a major source of strength. There has been a huge rise in wealth, but this has already been reflected in consumption. Therefore, consumer spending is unlikely to grow more quickly than disposable income. According to recent surveys, business investment spending, which in mid-1986 was expected to improve in 1987, may turn out to be weak. Real government purchases of goods and services will be reduced under the constraints of the Balanced Budget Act.

Net exports, on the other hand, are likely to support economic growth. CBO expects the balance in real net exports to increase substantially

TABLE I-1. THE CBO FORECAST FOR 1987 AND 1988

	Actual 1985	Estimated 1986	Forecast 1987	Forecast 1988
Fourth Quarter to Fourth Quarter (percent change)				
Nominal GNP	6.3	5.1	6.5	7.1
Real GNP	2.9	2.5	3.0	2.9
Implicit GNP Deflator	3.3	2.6	3.4	4.0
CPI-W	3.2	1.1	4.4	4.4
Calendar-Year Averages (percent)				
Unemployment Rate	7.2	7.0	6.6	6.5
Three-Month Treasury Bill Rate	7.5	6.0	5.6	5.7
Ten-Year Government Bond Rate	10.6	7.7	7.2	7.2

SOURCES: Congressional Budget Office; Department of Commerce, Bureau of Economic Analysis; Department of Labor, Bureau of Labor Statistics.

between the end of 1986 and the end of 1988. This improvement is the result of the decline in the dollar, much of which has already taken place, as well as the recent low rate of wage inflation in the United States.

The growth forecast by CBO for the next two years falls within the range of 2.0 percent to 3.5 percent anticipated by most forecasters. Forecasts made at this time, however, are subject to an unusual number of uncertainties, including:

- The effects on the economy of the restrictive shift in fiscal policy mandated by the Balanced Budget Act;
- The economic impact of the Tax Reform Act passed at the end of 1986, which changes the composition and sources of federal receipts and alters incentives for economic activities such as saving, working, and various forms of investment;
- The actions of OPEC oil producers;
- The future course of the dollar and the speed with which the recent decline in the value of the dollar will work to improve the real trade balance;
- The effects of relatively high household and business debt, which could cause a sudden retrenchment of spending.

Medium-Term Economic Projections

CBO's medium-term projections for 1989 through 1992, presented in Tables I-2 and I-3, indicate that real GNP growth will average 2.7 percent and the unemployment rate will decline slowly to about 6.0 percent. The medium-term projection of GNP is based largely on projections of gross domestic product (GDP), which differs from GNP in that it does not include the net income U.S. residents earn on assets held overseas.

The projections are constructed from rules of thumb that have a historical basis. They are not designed to be consistent with any particular set of policy assumptions. Real GDP is assumed to grow at its average postwar rate (about 3.2 percent) until it reaches CBO's estimate of potential GDP in 1990. 2/ Thereafter, actual GDP is assumed to grow at the estimated rate of growth of potential GDP (2.6 percent). This path for real GDP, when combined with an estimated relationship between real GDP growth and

2. Potential GDP is the highest level of output that can be sustained without increasing inflation. Methods of estimating potential GDP are discussed in Chapter III.

unemployment, will bring the unemployment rate down to 6 percent by mid-1990 and keep it constant thereafter.

While the trade deficits on current account should improve, net U.S. indebtedness to foreigners will continue to rise for many years and thus reduce the flow of net income from abroad. Gross national product is therefore expected to grow a bit more slowly than GDP. The inflation rate, as measured by the GNP deflator, is assumed to remain constant at 4.2 percent, which is its long-term average in the years 1948 through 1986. By the end of 1992, interest rates are assumed to decline to levels that will approximate the historical average for the real short-term rate, and CBO estimates a spread between the nominal short- and long-term rates of about 50 basis points.

The Tax Base. Projections of federal revenues depend in part on how wages, profits, and other incomes are assumed to behave (see Table I-3). Taxable wages are assumed to grow slightly faster relative to GNP in the next few years than in the recent past for two reasons:

- Many analysts believe that the rise in the dollar between 1980 and 1985 helped to hold down wages, especially in the tradeable-goods industries. The recent decline in the dollar and the consequent projected improvement in net exports is expected to permit somewhat stronger growth in wages.
- The growth of nontaxable fringe benefits (pensions, health insurance contributions, and so forth) relative to wages appears to have stopped, and taxable wages therefore should grow as fast as total compensation. 3/

Lower interest rates and a slowing of the growth of the federal debt will mean that personal interest payments will account for a declining share of GNP. These payments are a major component of other taxable income (see Tables I-2 and I-3). Profits will be held back by higher real wage

3. One of the major sources of relative growth in fringe benefits--health care insurance--appears to have been checked in recent years. The growth in pension plan assets resulting from the stock market's rise has recently permitted employers to reduce contributions or to reorganize plans, in effect extracting their previous contributions. This practice may not continue, however, particularly if the stock market were to fall significantly. Nontaxable fringe benefits may also begin to grow again as a result of the increasing prevalence of 401K plans, which give some employees the option of converting taxable wages into tax-deferred pension contributions. Although the Tax Reform Act restricts the use of 401K plans, the federal government has recently started such a plan for its own employees. The expected growth in private 401K plans, which is not incorporated in the economic projections, has been taken into account in computing revenue projections.

TABLE I-2. MEDIUM-TERM ECONOMIC PROJECTIONS FOR CALENDAR YEARS 1989-1992

Economic Variable	Estimated	Forecast		Projected			
	1986	1987	1988	1989	1990	1991	1992
Nominal GNP (billions of dollars)	4,216	4,469	4,779	5,124	5,503	5,888	6,288
Nominal GNP (percent change)	5.4	6.0	6.9	7.2	7.4	7.0	6.8
Real GNP (percent change)	2.6	2.8	3.0	3.0	3.1	2.7	2.5
Implicit GNP Deflator (percent change)	2.8	3.2	3.8	4.1	4.2	4.2	4.2
CPI-W (percent change)	1.6	3.5	4.3	4.3	4.3	4.3	4.3
Unemployment Rate (percent)	7.0	6.6	6.5	6.3	6.1	6.0	6.0
Three-Month Treasury Bill Rate (percent)	6.0	5.6	5.7	5.6	5.5	5.3	5.2
Ten-Year Government Bond Rate (percent)	7.7	7.2	7.2	6.6	6.2	5.9	5.6
Corporate Profits (percent of GNP)	7.1	7.2	7.1	7.1	7.2	7.2	7.4
Wage and Salary Disbursements (percent of GNP)	49.2	49.2	49.2	49.4	49.5	49.6	49.7
Other Taxable Income (percent of GNP)	20.3	20.3	20.1	19.8	19.5	19.2	18.9

SOURCE: Congressional Budget Office.

TABLE I-3. MEDIUM-TERM ECONOMIC PROJECTIONS FOR FISCAL YEARS 1989-1992

Economic Variable	Actual 1986	Forecast 1987	Forecast 1988	Projected 1989	Projected 1990	Projected 1991	Projected 1992
Nominal GNP (billions of dollars)	4,163	4,399	4,698	5,033	5,406	5,792	6,186
Nominal GNP (percent change)	5.7	5.7	6.8	7.1	7.4	7.1	6.8
Real GNP (percent change)	2.7	2.6	3.0	3.0	3.1	2.8	2.5
Implicit GNP Deflator (percent change)	2.9	3.0	3.6	4.1	4.2	4.2	4.2
CPI-W (percent change)	2.1	2.7	4.3	4.4	4.3	4.3	4.3
Unemployment Rate (percent)	7.0	6.7	6.5	6.4	6.1	6.0	6.0
Three-Month Treasury Bill Rate (percent)	6.4	5.5	5.7	5.6	5.5	5.4	5.2
Ten-Year Government Bond Rate (percent)	8.3	7.2	7.2	6.8	6.3	6.0	5.7
Corporate Profits (percent of GNP)	7.1	7.2	7.1	7.1	7.2	7.2	7.3
Wage and Salary Disbursements (percent of GNP)	49.2	49.2	49.2	49.3	49.5	49.6	49.7
Other Taxable Income (percent of GNP)	20.3	20.1	20.2	19.9	19.6	19.3	19.0

SOURCE: Congressional Budget Office.

growth and by the increase in employer contributions for social insurance slated for 1988, but the reduction in interest expense and reduced foreign competition as the dollar falls will work to increase profits. On balance, the profit share in 1992 is expected to be somewhat higher than in 1986.

Alternative Economic Projections. To indicate the sensitivity of budget outcomes to economic conditions, CBO has prepared two alternative sets of economic projections, one with higher real growth and the other with lower real growth than the baseline (see Table I-4 and Figure I-1). These paths suggest a plausible range of uncertainty for the entire period, but they do not encompass all possible outcomes, particularly for short periods.

The high-growth path assumes that the growth rate of real GNP through 1992 averages 4.2 percent, about 1.4 percentage points higher than that of the baseline. Because of such strong growth, the civilian unemployment rate falls to 6.0 percent by 1988 and 4.6 percent by 1992. These rates of unemployment are below levels usually associated with stable inflation, and as a result the inflation rate rises dramatically on the high path, reaching 8.9 percent by 1992. Interest rates also rise more sharply than on the baseline, reflecting both higher inflation and presumed efforts by the Federal Reserve Board to restrain it.

The low-growth path assumes that a recession occurs in the second half of 1987. In depth and duration, it mimics that of 1973-1975. The assumed recovery is average by postwar standards. The unemployment rate rises to 9.9 percent in 1988 and in 1992 falls only to 8.4 percent. With high unemployment rates, the inflation rate, which before the recession is assumed to be slightly above its baseline level, falls to 2.4 percent in the 1990-1992 period. Nominal interest rates, which are also assumed to rise above baseline levels before the recession, fall well below the baseline after the recession. Nevertheless, the real interest rate on three-month Treasury bills is nearly half a percentage point above its baseline level in 1992.

FISCAL AND MONETARY POLICY

Judged by the monetary aggregates, reserve measures, and money market indicators, monetary policy was accommodative in 1986. Fiscal policy was stimulative, as the deficit reached record levels. It will probably be restrictive in the future, however, particularly if the targets of the Balanced Budget Act are met.

TABLE I-4. ALTERNATIVE ECONOMIC PROJECTIONS
(By calendar year)

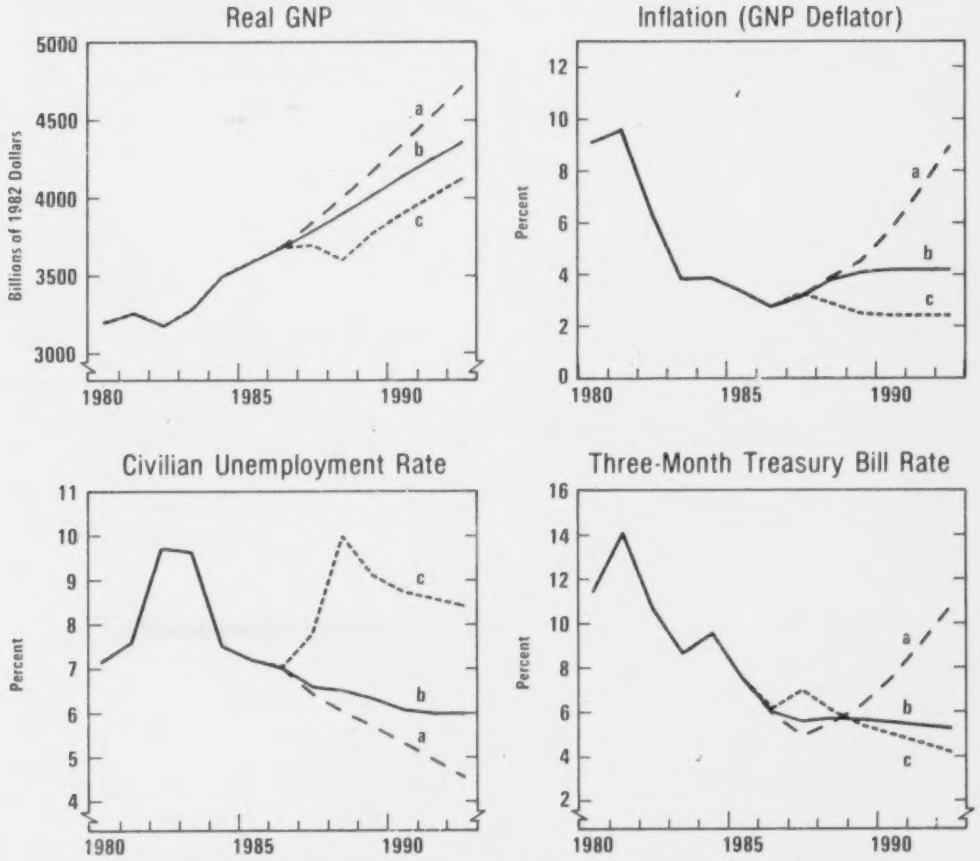
	1987	1988	1989	1990	1991	1992
Nominal GNP (billions of dollars)						
High	4,533	4,910	5,347	5,888	6,578	7,466
Baseline	4,469	4,779	5,124	5,503	5,888	6,288
Low	4,369	4,380	4,703	4,979	5,246	5,528
Real GNP (percent change)						
High	4.2	4.2	4.2	4.2	4.2	4.2
Baseline	2.8	3.0	3.0	3.1	2.7	2.5
Low	0.4	-2.6	4.7	3.4	2.9	2.9
Implicit GNP Deflator (percent change)						
High	3.2	3.9	4.5	5.7	7.2	8.9
Baseline	3.2	3.8	4.1	4.2	4.2	4.2
Low	3.3	2.9	2.5	2.4	2.4	2.4
CPI-W (percent change)						
High	3.5	4.4	4.7	5.7	7.1	8.6
Baseline	3.5	4.3	4.3	4.3	4.3	4.3
Low	3.6	3.5	2.9	2.7	2.7	2.7
Unemployment Rate (percent)						
High	6.4	6.0	5.7	5.3	5.0	4.6
Baseline	6.6	6.5	6.3	6.1	6.0	6.0
Low	7.8	9.9	9.1	8.7	8.6	8.4
Three-Month Treasury Bill Rate (percent)						
High	4.9	5.5	6.3	7.5	9.0	10.8
Baseline	5.6	5.7	5.6	5.5	5.3	5.2
Low	7.0	6.0	5.4	4.9	4.5	4.2

SOURCE: Congressional Budget Office.

Fiscal Policy

Fiscal policy remains headed toward a very restrictive course, assuming that the deficit targets of the Balanced Budget Act of 1985 are achieved in 1988 and subsequent years. CBO now estimates that the baseline federal

Figure I-1.
Alternative Economic Assumptions



SOURCES: Congressional Budget Office; Department of Commerce, Bureau of Economic Analysis; Department of Labor, Bureau of Labor Statistics; Federal Reserve Board.

[a] High path.

[b] Baseline.

[c] Low path.

deficit will decline from $221 billion in fiscal year 1986 to $174 billion in 1987. To satisfy the requirements of the Balanced Budget Act, the fiscal year 1988 deficit cannot exceed $108 billion--a further decline of about $66 billion. Substantial policy changes, however, will be needed to achieve that target, since CBO projects that without them the 1988 deficit would be $169 billion.

Although the Balanced Budget Act limits the size of future federal deficits, these limits do not accurately describe the nature of discretionary fiscal policy, because actual deficits are also affected by economic conditions. A better gauge of discretionary fiscal policy is provided by the standardized-employment deficit--the deficit calculated at some benchmark rate of unemployment, here taken to be 6 percent. According to this budgetary measure, fiscal policy will be very restrictive during the forecast period if the targets of the Balanced Budget Act are achieved in 1988 (see Table I-5 and Figure I-2); that is, the standardized-employment deficit is projected to fall from 4.4 percent of potential GNP

TABLE I-5. FISCAL POLICY AS MEASURED BY THE STANDARDIZED-EMPLOYMENT DEFICIT
(By fiscal years)

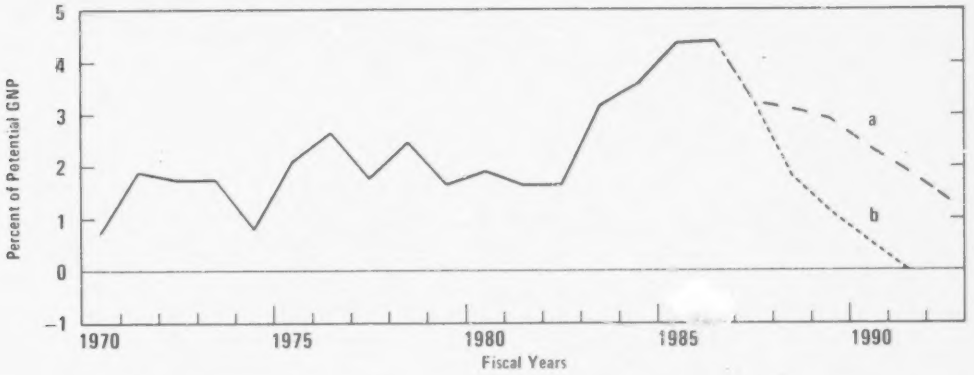
Standardized-Employment Deficit	Actual 1986	1987	1988	1989	1990	1991	1992
			Billions of Dollars				
Baseline	187	144	146	146	128	110	86
Balanced-Budget Target a/	138	113	85	56	30	0	n.a.
			Percent of Potential GNP				
Baseline	4.4	3.2	3.1	2.9	2.4	1.9	1.4
Balanced-Budget Target a/	3.2	2.5	1.8	1.1	0.6	0.0	n.a.

SOURCE: Congressional Budget Office.

NOTE: n.a. = not applicable.

a. The targets of the Balanced Budget and Emergency Deficit Control Act of 1985, adjusted to a standardized-employment deficit basis..

Figure I-2.
Standardized-Employment Deficit



SOURCES: Congressional Budget Office; Department of Commerce, Bureau of Economic Analysis.

[a]CBO baseline.

[b]Balanced Budget Act targets following 1987.

in 1986 to 3.2 percent in 1987 and 1.8 percent in 1988. 4/ The degree of fiscal restraint, however, could be much less if a substantial proportion of the required deficit reduction in 1988 is the result of asset sales. Compared with spending cuts, asset sales are thought to have little direct short-run impact on aggregate demand. Moreover, even though sales of assets reduce reported federal deficits in the year of the sale, they do not reduce federal credit demands and absorption of savings from the private sector.

Economists have widely diverging views regarding the short-run impact of fiscal restraint on output and employment. Some analysts maintain that reductions in federal spending have a substantial impact on aggregate demand, implying that the large amount of restraint projected under the Balanced Budget Act could produce slower growth. Others argue that fiscal policy is not likely to dampen growth significantly in the current situation, largely because of the stimulative effects of lower interest rates. One such view stresses that the expectation of sustained fiscal restraint

4. A significant amount ($12 billion) of the fiscal restraint in 1987 results from the temporary revenue-raising effect of the Tax Reform Act of 1986. Excluding these revenues from the 1987 standardized-employment budget calculations, there will be less fiscal restraint in 1987 and more in 1988. Asset sales and other factors, discussed in Chapter II, have a similar effect on the allocation of fiscal restraint between 1987 and 1988.

tends to lower current long-term interest rates, and thus boost interest-sensitive private spending. Another consideration is that with flexible exchange rates, the lower interest rates brought about by current and expected fiscal restraint reduce capital inflows from abroad, which in turn stimulates net exports through a depreciation of the dollar. Nevertheless, there is some risk that the large amount of fiscal restraint assumed for this year and next could slow growth in output below that projected by CBO, even if monetary policy, the recent decline in interest rates, and falling exchange rates provide a strong stimulus to the economy. 5/

Continued adherence to the targets of the Balanced Budget Act would dramatically reduce the standardized-employment deficit, eliminating it by 1991--a situation not observed in 25 years. Most economists agree that such a development would increase net national saving, reduce real interest rates, and thus promote capital formation and long-term growth of productivity and living standards. Some economists argue that a portion of the favorable long-term impact on capital formation of eliminating the structural deficit may be offset by various provisions of the Tax Reform Act of 1986. In particular, the new tax law eliminates the investment tax credit for business equipment and significantly reduces depreciation allowances for structures. Though the corporate tax rate is reduced substantially, the net result of tax reform is to raise the average effective tax on business income. The Tax Reform Act of 1986, however, taxes various types of business capital more equally. This change will encourage capital to flow to those sectors of the economy in which it is more productive, rather than to those sectors which, under the old law, provided the greatest tax advantage. The end result may be a smaller capital stock than would emerge under the old law, but one that is used more efficiently.

Many analysts believe the new law is beneficial to saving, and is less conducive to borrowing, because it lowers marginal tax rates. 6/ If saving is

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5. Throughout the 1980s, the major countries of the Organization for Economic Cooperation and Development (OECD), excluding the United States, have followed a course of fiscal discipline, reflected by continuing declines in the average standardized-employment deficit relative to GNP. This action accentuated the effect of fiscal stimulus on the trade balance in the United States. A continuation of fiscal restraint by the OECD countries next year will tend to offset the favorable effects on the trade balance of a U.S. shift to fiscal restraint.

6. The restrictions on consumer interest deductions should also make borrowing more costly. On the other hand, higher capital gains taxes and restrictions on partnership losses work in the opposite direction by reducing after-tax returns on some forms of private saving. The new law is also less favorable to certain types of retirement saving, but most analysts believe this will have a relatively minor impact on total saving.

indeed increased, interest rates will be lower than they would be in the absence of tax reform. As a result, some of the adverse effects of the higher effective corporate tax rates mentioned above are likely to be offset. Lower tax rates on individuals may also be beneficial to economic growth because of their effect on work effort. 7/

Financial Markets and Monetary Policy

The rally in financial markets, which began in mid-1984, continued unabated through the first half of 1986 before slowing at midyear. The expansion in the prices of financial assets--both stocks and bonds--had been fueled by reduced credit demands, lower inflation, accommodative monetary policy, and expectations of lower federal deficits in the future. Fears of a pickup in inflation and concerns as to the sustainability of the economic expansion into 1987 appear to have caused a slowing of the boom in the stock and bond markets, though the stock market continued to hit new highs.

Interest Rates. In early 1986, interest rates continued the rapid decline that had begun six quarters earlier (see Figure I-3). Although the drop occurred across the whole spectrum of maturities, it was sharpest among the long-term instruments. As a result, the yield curve flattened significantly and remained flat through midyear. In early fall, rapid growth in money supply and increasing import prices raised fears of inflation, causing long-term rates to increase. Short-term rates fell, however, and the yield curve steepened. The most recent data once again indicate a flattening of the yield curve, though it is still steeper than in June 1986.

Real short-term interest rates continued their downward trend in 1986. As measured by the nominal three-month Treasury bill minus the next three month's rate of change in the personal consumption deflator, the real short-term interest rate fell below the 2 percent level in the last quarter of the year (see Figure I-4). Many forecasters, including CBO, are expecting a slight pickup in economic activity this year and a modest increase in nominal short-term interest rates over the course of the year.

The behavior of the stock market mirrored that of the bond market, expanding rapidly in the first half of last year and then slowing in the latter

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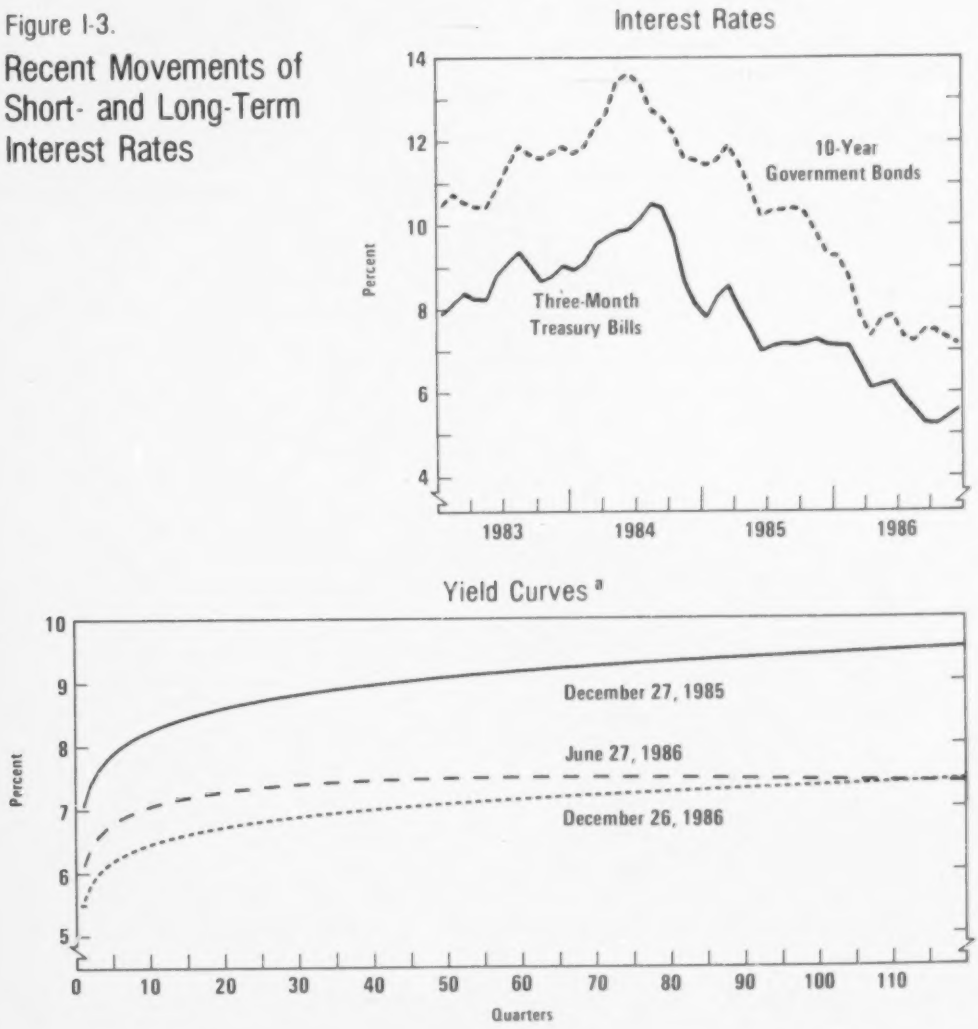
7. The theoretical effect of lower marginal tax rates on work effort is ambiguous. The increased reward for an extra hour of labor should increase work effort, but the resulting higher level of after-tax income could enable people to achieve their own goals for private consumption with less work. Empirical studies generally find only a slight effect of after-tax wages on total hours worked, but find a considerably larger effect on the work effort of some second earners.

part. The Standard and Poor's Index of 500 Stocks rose over 40 percent from December through June, and then slowed to a still respectable 6 percent growth in the second half (see Figure I-5).

Monetary Policy. Judged on the basis of the broader monetary aggregates, various reserve measures, and money market indicators, Federal Reserve

Figure I-3.

Recent Movements of Short- and Long-Term Interest Rates



SOURCES: Congressional Budget Office; Federal Reserve Board.

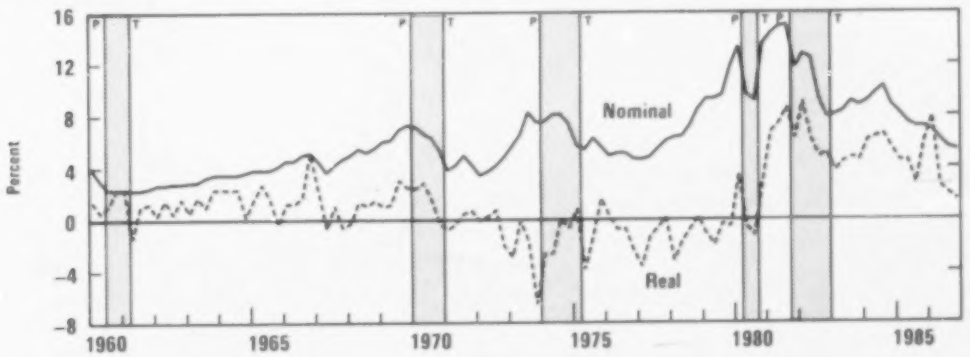
[a]These curves were fitted to weekly average yields on Treasury instruments using a logarithmic function described by Bradley and Crane in the *Journal of Bank Research*, Spring 1973.

policy was accommodative in 1986. The growth of M1 was dramatic, as shown in Figure I-6. From November 1985 to November 1986, M1 grew by 15 percent, far above the 8 percent upper bound of the Federal Reserve's target range. In contrast, both the M2 and M3 measures were close to the upper bounds of their target ranges. Total domestic nonfinancial debt grew about 13 percent last year, slightly above its upper target of 11 percent.

The reserve aggregates tell a similar story of monetary accommodation (see Table I-6). The monetary base expanded at a rate of 9 percent to 10 percent over the entire year, and total reserves exploded at a rate above 20 percent. Adjustment plus seasonal borrowing from the discount window--a measure of the reserve pressures on commercial banks--remained relatively steady between $300 million and $400 million, and the spread between the federal funds rate and the discount rate hovered in a very narrow range throughout most of the year. Both of these measures indicate a policy of monetary ease. The Federal Reserve underscored its accommodative policy with four reductions in the discount rate of one-half of a percentage point each.

Last July, the Federal Reserve Board announced tentative targets for the broader monetary aggregates for 1987. The targets for the growth of M2 and M3 were cut one-half of a percent to a range of 5½ percent to

Figure I-4.
Nominal and Real Three-Month Treasury Bill Rates



SOURCES: Congressional Budget Office; Federal Reserve Board; Department of Commerce, Bureau of Economic Analysis.

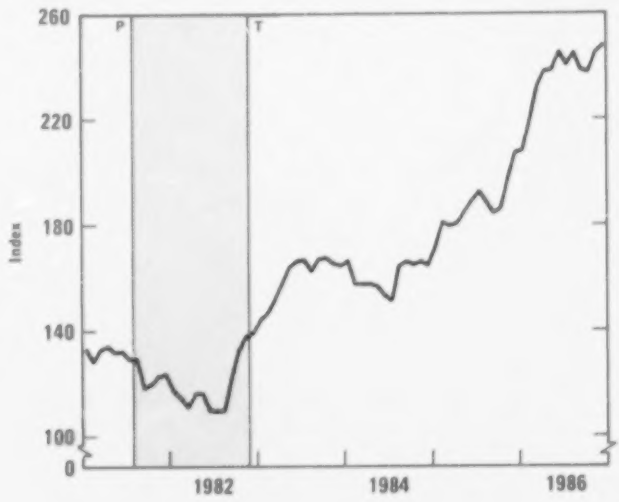
NOTE: The real three-month Treasury bill rate used here is a nominal rate minus the next quarter's rate of change in the implicit price deflator. The 1986:IV value for the real interest rate is based on the CBO forecast of the personal consumption deflator for 1987:I.

8½ percent, and the target growth of debt was left between 8 percent and 11 percent. At the same time, the Federal Reserve said that the 1986 target range for M1 of 3 percent to 8 percent would be indicative of the 1987 target range if the velocity of M1 stabilized. The Federal Reserve qualified this range, however, citing the exceptional uncertainties in predicting the behavior of M1, and said it would review the appropriate range and weight to be placed on this aggregate.

The measures of the velocity of money (that is, the ratios of nominal GNP to each of the monetary aggregates) have departed substantially from long-run trends in recent years (see Figure I-7). The departure was particularly severe for the velocity of M1, but the velocities of M2 and M3 have also deviated from trend. Various hypotheses have been offered to explain these deviations, but none is entirely satisfactory. The phenomenon is not well understood.

Under these conditions, the management of monetary policy is fraught with risks. The difficulty of forecasting various velocities means it will be equally difficult to choose appropriate targets of growth for the monetary aggregates. The target ranges have sufficient leeway to allow for gradual adjustment to changes in velocity trends, but a surprising shift in velocity may not be recognized for a long time. If the ratio between nominal GNP and the monetary aggregates suddenly rises--that is, if velocity increases--expected inflation may increase, further reducing the desire to hold money, and further increasing velocity. Similarly, a downward shift in velocity may raise fears of a recession and may further reduce velocity. The possibility

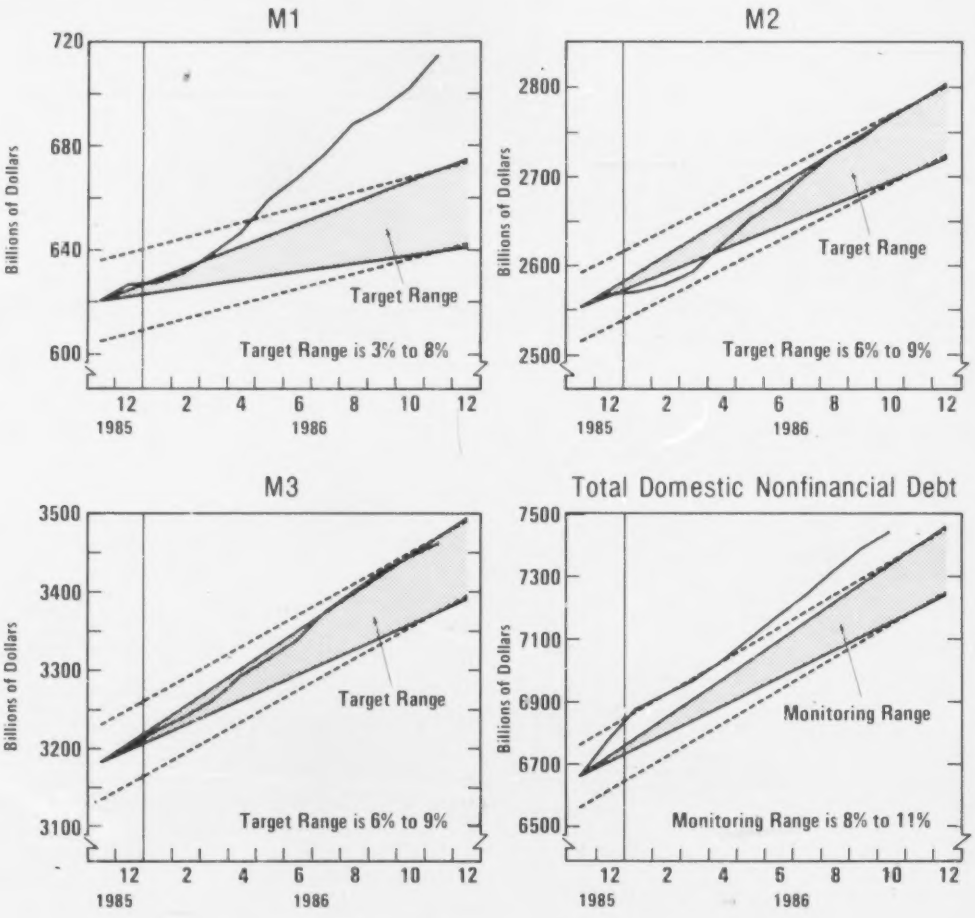
Figure I-5.
Common Stock Prices (Standard and Poor's "500")



SOURCES: Congressional Budget Office; Standard and Poor's Corporation

of such instability complicates the management of monetary policy. The Federal Reserve has been able to accommodate the shifts in velocity that have occurred, while minimizing the adverse effects on the economy. The CBO forecast expects this situation to continue, but the possibility that it will not continue represents an element of uncertainty in the forecast.

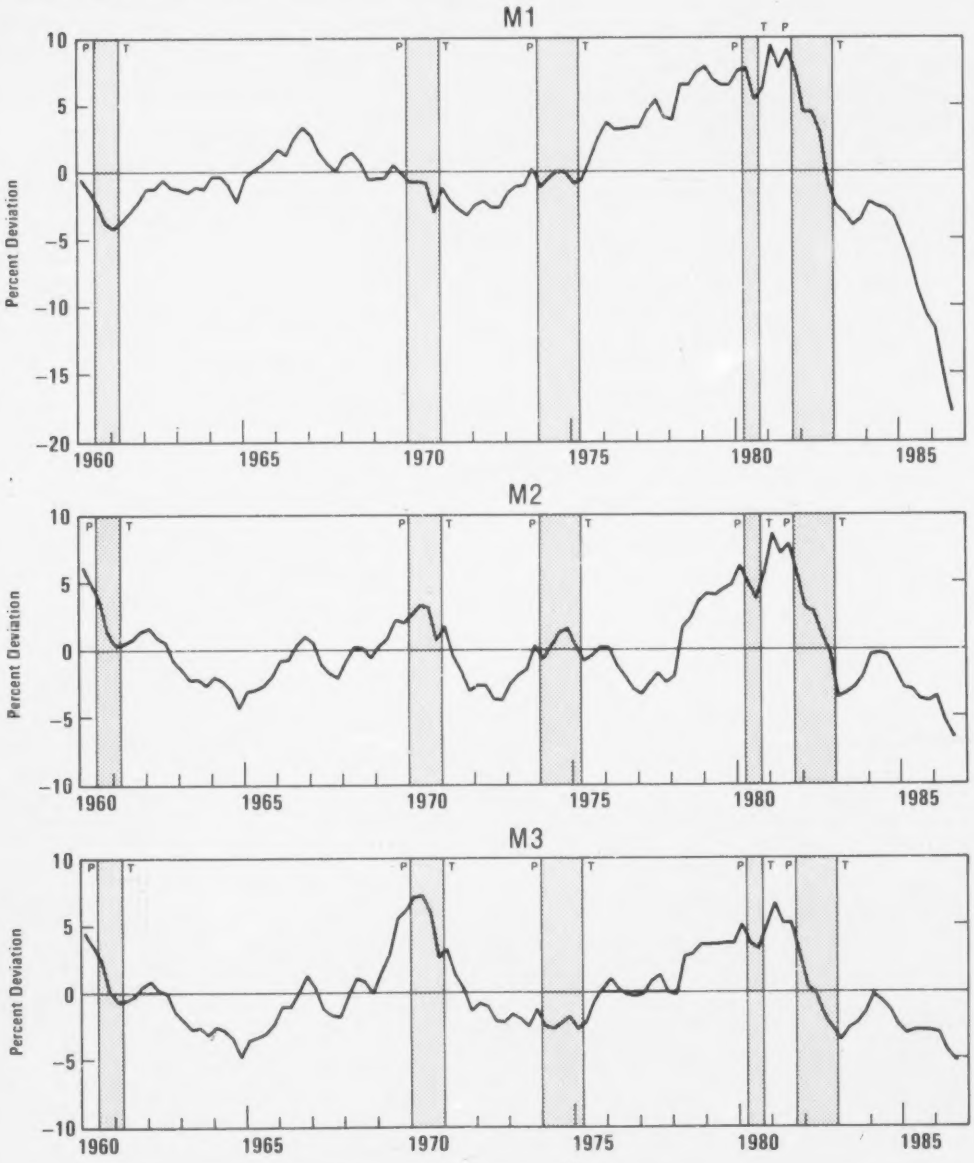
Figure I-6.
Money Growth and Targets in 1986



SOURCES: Congressional Budget Office; Federal Reserve Board.

NOTE: Dotted lines refer to growth bands that the Federal Reserve Board considers consistent with its targets.

Figure I-7.
Velocity: Deviations from Trend Level



SOURCES: Congressional Budget Office; Federal Reserve Board; Department of Commerce, Bureau of Economic Analysis.

NOTE: Velocity is the ratio of GNP to money.

RECENT ECONOMIC DEVELOPMENTS

The growth of the economy over the four quarters of 1986 was about the same as in 1985, despite sharp declines in interest rates, oil prices, and the value of the dollar early in the year. Industrial production worsened in the first half of the year as oil extraction slumped and net exports deteriorated, but by the end of the year it had strengthened. Employment made strong gains but not enough to reduce the unemployment rate significantly. Moreover, though the fall in oil and other commodity prices caused the inflation rate to decline temporarily, the inflation rate at year-end was not significantly different from what it was in late 1985.

Aggregate Economic Activity

The success of foreign producers in competing with U.S. firms in U.S. and overseas markets continued to drive a wedge between domestic demand and the growth of output in the first three quarters of 1986 (see Figure I-8). The growth of total domestic final demand slowed, but the growth of output slowed even more (see Table I-7).

Industrial production declined in the first half of the year, and rates of industrial capacity utilization fell from almost 81 percent in December 1985

TABLE I-6. SELECTED MEASURES OF MONETARY POLICY
(Seasonally adjusted annual rates of change, in percents, unless otherwise noted)

Time Period	Growth in Monetary Base	Growth in Total Reserves	Seasonal and Adjustment Borrowing (millions of dollars) a/	Spread Between Federal Funds and Discount Rates (percentage points) a/
1986: I	8.9	13.8	303	0.46
1986: II	9.1	19.0	276	0.31
1986: III	10.2	24.9	405	0.38
1986: IV	11.1	26.6	401	0.77

SOURCES: Congressional Budget Office; Federal Reserve Board.

a. Not seasonally adjusted.

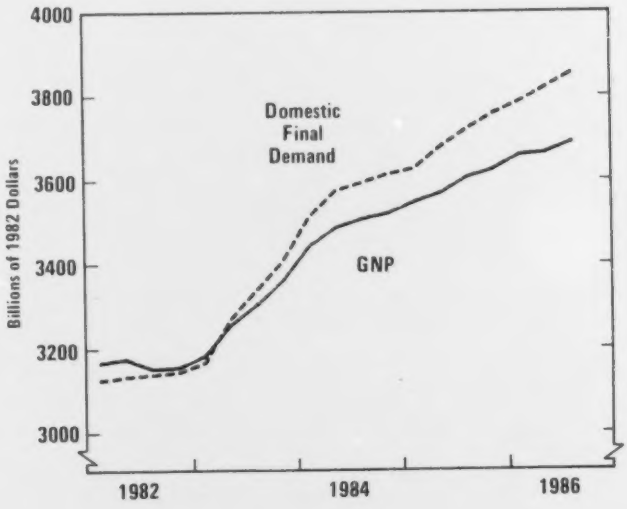
to 79 percent by mid-1986. Manufacturing of durables turned in a particularly weak performance as net exports of those goods deteriorated. Although some industries managed gains in the first half of the year, most declined, and from December 1985 to June 1986 the Industrial Production Index fell 2.2 percent. In the second half of the year, however, the Industrial Production Index grew by more than 3 percent. Much of the turnaround resulted from an increase in the production of defense and space equipment and a leveling off of the previous declines in mining and utilities. A wide range of industries, however, experienced significant rebounds in production rates.

Labor Markets

The unemployment rate showed little change last year as the growth in the labor force--with a record-high participation rate--almost kept pace with the creation of jobs. Manufacturing employment recovered slightly at year-end after falling most of the year, but virtually all of the growth in employment was in the service-producing sector. Growth in productivity for the economy as a whole was poor, despite the good productivity performance in the manufacturing sector.

Unemployment and Employment. The unemployment rate for civilian workers has shown a moderate downward trend since late 1985. In the fourth quarter of 1986, the rate was 6.8 percent, slightly below that of the

Figure I-8.
Gross National Product and Domestic Final Demand



SOURCES: Congressional Budget Office; Department of Commerce, Bureau of Economic Analysis.

last quarter of 1985. The unemployment rate for adults has changed little since late 1985. The rate for teenagers, however, has eased by about a percentage point, and the unemployment rate for blacks also fell, largely because of a reduction in the unemployment rate for teenagers.

Although the unemployment rate showed almost no change, many new jobs were created. The household survey conducted by the Bureau of Labor Statistics indicates that employment grew by about 2.3 percent between the

TABLE I-7. REAL GNP AND INDUSTRIAL PRODUCTION
(Percent change from previous period at annual rates, unless otherwise noted)

Economic Indicator	1984	1985	1986 I	1986 II	1986 III
Real GNP	6.4	2.7	3.8	0.6	2.8
Final sales	4.4	4.2	-1.3	3.4	4.5
Personal consumption	4.7	3.5	3.6	6.2	6.7
Business fixed investment	16.9	9.3	-15.1	-0.9	-2.1
Residential investment	14.3	3.9	11.0	14.5	9.7
Government purchases	4.0	6.8	-12.3	9.7	4.5
Exports	6.2	-2.0	7.1	-9.8	13.3
Imports	23.1	3.8	0.2	15.8	17.3
Inventory Change (billions of 1982 dollars)	59.2	9.0	39.9	15.1	-0.3
Net Exports (billions of 1982 dollars)	-83.6	-108.2	-125.9	-153.9	-163.3
Real Final Sales to Domestic Purchasers a/	6.3	4.8	-1.8	6.4	5.3
Industrial Production	11.2	2.0	1.0	-1.9	1.9
Consumer durables	13.9	0.6	2.4	-1.0	6.4
Business equipment	16.3	4.2	0.6	-6.1	3.5
Defense and space	9.3	9.1	0.7	2.3	6.2

SOURCES: Congressional Budget Office; Department of Commerce, Bureau of Economic Analysis; Federal Reserve Board.

a. Real final sales minus net exports.

fourth quarters of 1985 and 1986. By comparison, employment grew by 1.9 percent between the fourth quarters of 1984 and 1985.

The service-producing sector has accounted for about 85 percent of all new nonfarm jobs since the trough of the last recession (November 1982), and for all of the increase in employment since late 1985. In fact, of the 2.1 million nonfarm, private-sector jobs created last year, about 75 percent were in four specific service categories: retail trade, business services, health services, and the finance, insurance, and real estate sector.

Employment in manufacturing, on the other hand, declined from February to September 1986 before showing some signs of recovery late in the year. Mining employment, which constitutes only a small fraction of total employment, fell sharply through most of the year, and construction jobs grew rapidly before leveling off in October.

Productivity and Unit Labor Costs. Growth in productivity has been poor for the economy as a whole, but the manufacturing sector has experienced solid gains. Between the third quarters of 1985 and 1986, real manufacturing output grew by 2.0 percent while manhours fell by 0.3 percent, resulting in a 2.3 percent increase in productivity in that period.

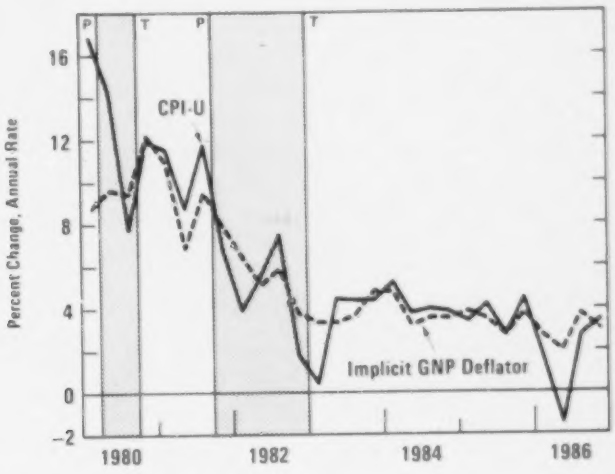
Output per hour for the total nonfarm business economy (which includes manufacturing) grew by only 0.3 percent over the year ending in the third quarter of 1986. Unit labor costs rose by 2.5 percent, despite modest growth in wages.

In manufacturing, however, the combination of solid gains in productivity and small increases in nominal hourly compensation caused unit labor costs to rise by only 0.2 percent in the four quarters ending in the third quarter of 1986. In the last two years, unit labor costs in manufacturing have been increasing at only about 0.5 percent per year. The small increase in unit labor costs over the past year should help to improve the trade balance in manufacturing.

Inflation

The inflation picture is still dominated by recent movements in the prices of oil and food. In the first half of 1986, the dramatic fall in oil prices from nearly $30 a barrel late last year to the low teens, combined with low meat prices caused in part by government incentives to slaughter dairy cows, led to several months of declines in the Consumer Price Index. This situation was unusual and unsustainable. In fact, the increase in oil prices from

Figure I-9.
Recent Inflation Rates



SOURCES: Congressional Budget Office; Department of Commerce, Bureau of Economic Analysis; Department of Labor, Bureau of Labor Statistics.

NOTE: Data for the fourth quarter of 1986 are estimated by CBO.

around $12 to around $15 a barrel that occurred in the second half of 1986, combined with higher growth of food prices (mainly meats) in the same period, pushed the rate of increase in the CPI in the second half of 1986 back to its recent trend (see Figure I-9).

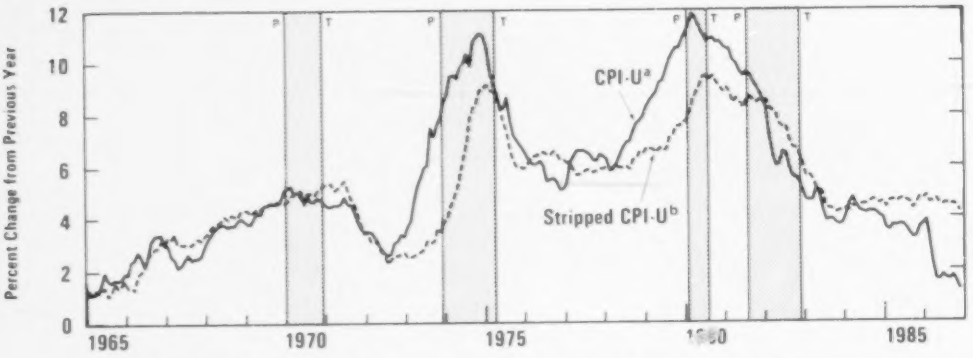
If one looks beyond these special factors, the striking fact is the stability in the rate of increase in the "stripped" CPI. 8/ For the past three years, the 12-month change in the stripped CPI has not deviated by more than a few tenths of a percentage point from 4½ percent (see Figure I-10). Two partly offsetting factors contributed to this stability:

- The rate of wage increases fell dramatically in 1986, resulting in a virtual elimination of cost pressures stemming from this source;
- The falling value of the dollar since early 1985, however, has recently caused prices of imported goods (even excluding oil) to increase quite sharply.

Assessing the magnitude of these influences on inflation is complicated by severe measurement problems. The decline in wages is probably over-

8. CPI for all urban consumers, excluding food at home, energy, and used cars.

Figure I-10.
Measures of Inflation



SOURCES: Congressional Budget Office; Department of Labor, Bureau of Labor Statistics.

[a] CPI-U from January 1983 to present; before that time, a CPI measure that is conceptually similar to the current CPI-U treatment of homeownership.

[b] CPI-U excluding food, energy, and used cars.

stated for the nonmanufacturing sectors, while the most common measures of the exchange rate overstate both the magnitude of the increase in the dollar from 1980 to 1985 and the extent of its decline since early 1985. The problems associated with the measurement of exchange rates are discussed in the section on net exports; the problems concerning the measurement of wages are discussed below.

Wages. The overall rate of increase in nominal wages has fallen drastically since 1980. As measured by the average hourly earnings index (AHEI), it fell to a 2.3 percent rate of growth in 1986 (see Figure I-11). The AHEI probably understates wage growth, however, because it fails to take account of employment shifts within industries such as wholesale trade, retail trade, and construction, and, to a much lesser extent, of occupational shifts in manufacturing. Components of the employment cost index (ECI), plotted with the corresponding components of the AHEI in Figure I-12, are constructed by a procedure that holds constant not only the industrial composition of employment at quite a fine level of detail, but also the gross occupational composition. The fact that the AHEI is lower than the ECI implies that, within each industrial sector, the composition of employment has shifted toward lower-paying jobs. 9/ Therefore, the rate of increase in

9. The ECI indexes are generally more volatile than the AHEI indexes because they are based on a smaller sample of observations. This difference in volatility does not, however, appear to reduce the force of the arguments presented here.

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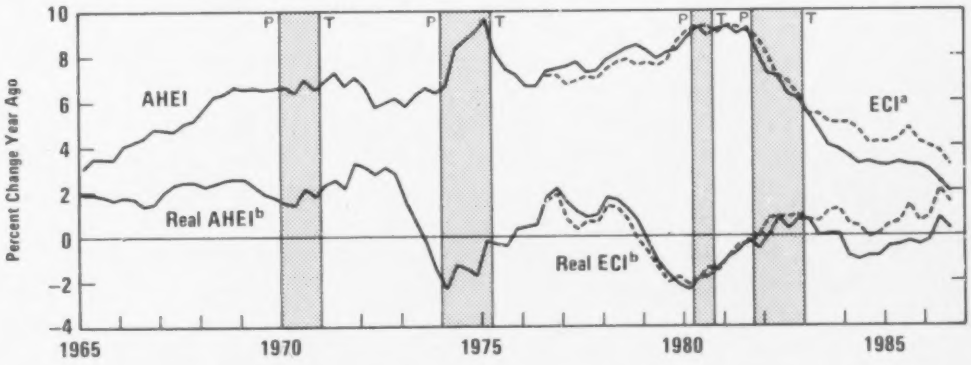
nominal wages in 1986 is probably best measured by the ECI, which grew by 3.1 percent between the third quarters of 1985 and 1986. This growth is still quite low by historical standards, however. Two factors--strong foreign competition and chronic excess capacity--have contributed to the weak growth in wages.

- The dollar, despite its recent fall, is worth considerably more relative to foreign currencies than it was in 1980. Because of this higher value, American labor competes with overseas labor that, in dollar terms, is cheaper relative to American labor than it was in 1980. This competition increases both imports and the possibility that U.S. companies might move their manufacturing facilities overseas. As a result, wages in the United States are held down.

- Excess capacity is holding down both wages and prices. The unemployment rate has remained stubbornly around 7 percent for nearly two years. Many economists think that higher wage growth will occur only when the rate drops toward 6 percent. Capacity utilization in manufacturing has also remained relatively low and has not changed much for two years.

Figure I-11.
Private Nonfarm Wages



SOURCES: Congressional Budget Office; Department of Labor, Bureau of Labor Statistics.

NOTE: AHEI = average hourly earnings index, ECI = employment cost index.

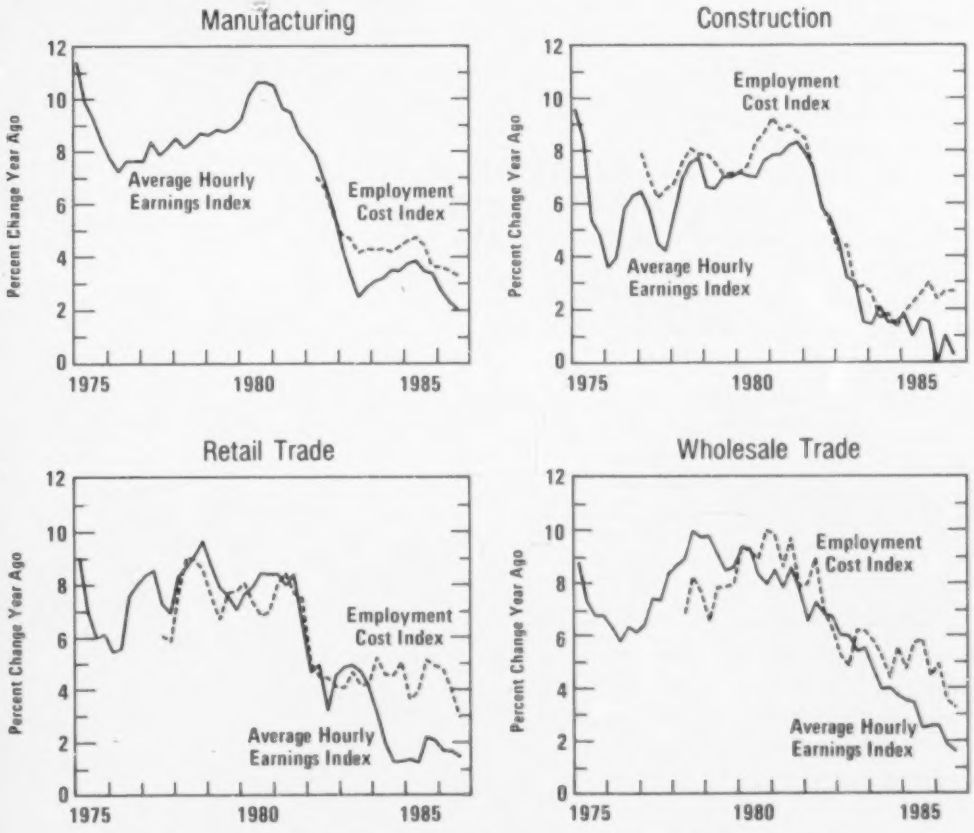
[a]Wages and salaries.

[b]Nominal index deflated by a version of the CPI-U that treats homeownership consistently.

Low-wage occupations can be expected, broadly speaking, to have low productivity as well. Thus, these shifts in employment probably contribute to the poor productivity performance of recent years (Chapter III pursues this point further). They also help to explain why, despite rapid growth in employment, the aggregate of labor incomes has increased relatively slowly in the current expansion.

Outlook for Oil Prices. The Organization of Petroleum Exporting Countries (OPEC) met in December to arrange a new system of official prices and

Figure I-12.
Occupational Shifts and Wages



SOURCES: Congressional Budget Office; Department of Labor, Bureau of Labor Statistics.

NOTE: The average hourly earnings index is affected by employment shifts to low-wage occupations, while the employment cost index is not. Thus the difference between the indexes is a measure of the effects of occupational shifts on wages.

production quotas intended to enforce a price structure equivalent to about $18 a barrel for marker crude oil. OPEC appears to have been reconsolidated for the time being under Iranian leadership with tacit Saudi approval. Although an agreement was reached, like previous agreements it will be hard to enforce:

- After 18 months, OPEC returned to a procedure that specifies both prices and quantities for exports of the OPEC member countries. Only by chance will the price differentials and quantities specified by the agreement be consistent with market demands. Where differentials are distorted, exporters will be under considerable pressure to discount prices.

- The OPEC agreement did not include Iraq, and Iraq could increase its output significantly in the near future.

The agreement did not eliminate OPEC's fundamental problems--the slackening of world oil demand in the mid-1980s brought on by sluggish GNP growth and the response to earlier price increases, and the rapid growth of non-OPEC sources of supply. Because of these problems, it seems unlikely that OPEC will seek official prices higher than $18 in the near future. High current inventories of oil and related products could also force down prices. Thus, prices are much more likely to drop below $18 per barrel than rise above that price in the next year or so. CBO's forecast, completed before the OPEC meetings, assumes that oil prices will remain close to $15 per barrel through 1988. This forecast is in line with market expectations before the OPEC meeting, but it implies lower prices than the market currently assumes. 10/

Outlook for Inflation. Inflation, as measured by the CPI, will probably accelerate somewhat in the next year because of the increase in import prices resulting from the recent and projected decline in the exchange rate, and because of the projected increase in oil prices from about $12 to about $15 a barrel between mid-1986 and early 1987. If oil prices are higher than assumed by CBO, the CBO forecast will have understated the contribution of energy prices to inflation. The GNP deflator is also expected to show an increase in inflation, though it will be smaller than the increase in CPI inflation. Some of the same factors may spur an upturn in the rate of increase of wages.

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10. At the time of writing, spot and forward prices are above $18, reflecting the abnormally cold winter in Europe that is incompletely offset by good weather in the United States.

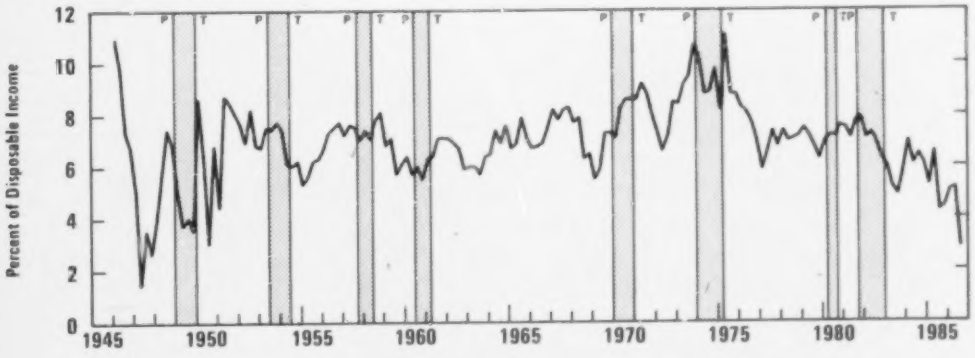
Consumption

Vigorous consumer demand has been a major source of economic growth over the past three years. By the end of 1985, after three years of recovery, real consumer spending had grown 4.2 percent over its level at the fourth-quarter recession trough in 1982. The average for the seven previous recoveries at the same stage is 3.9 percent. The rapid growth in total consumer spending was attributable to the category of durable goods which, through 1985, grew an average of 9.8 percent--well above the postwar-recovery average of 6.6 percent.

Despite the unusually strong growth of consumption by the end of 1985, it continued to outpace overall economic growth in the first three quarters of 1986. Many analysts argue that the rapid growth in consumption to date has depended too heavily on debt-financed purchases of durable goods without solid underlying growth in real disposable income. The low personal saving rate, one of the lowest since World War II, attests to this imbalance between income and outlays (see Figure I-13).

On the other hand, many economists argue that the increase in household net worth in recent quarters provides a strong basis for the rapid growth in consumption. They point out that despite record-high ratios of consumer installment debt to income (over 19 percent), which some analysts view as a sign of stressed consumer balance sheets, the real value of household assets has increased substantially since 1985. This rise is the result of the marked decline in interest rates, the stock market boom, and

Figure I-13.
Personal Saving Rate



SOURCES: Congressional Budget Office; Department of Commerce, Bureau of Economic Analysis.

rising home values. The net effect of these developments has been to improve the real net worth of households. The pace of accumulation of net worth over the near term may be tempered by less favorable movements in the stock market, stable interest rates, and, possibly, some features of the new tax law. Still, the gains since 1985 are not expected to be reversed.

There are a number of indications that the short-term outlook for consumption of durable goods is not good. Data on consumption have shown considerable volatility in recent months, but the rate of increase of real expenditures appears to have fallen off in the last quarter of 1986. The growth of furniture and appliance sales is likely to slow this year since such sales have probably not yet fully reflected the mid-1986 downturn in housing starts. In addition, auto sales may fall early this year. Because the new tax law eliminated the deductibility of sales taxes from taxable personal income as of January 1987, consumers may have made purchases in 1986 that they would normally have made in 1987. These signals point to an abatement in 1987 of this recovery's exceptionally rapid growth in real expenditures on durable goods.

Although the short-term signals indicate a slowing of growth, the extent of the slowdown depends on the more fundamental factors that determine consumer demand. In the recovery to date, growth in personal disposable income--held back by the high rate of unemployment and slow growth in labor income--has not been exceptional. The Tax Reform Act of 1986 may increase disposable income and therefore raise consumer spending, but it is also possible that the increase in the effective tax rate on corporations will result in higher prices, lower wages, or lower dividends. All of these factors would weaken the stimulus of the tax law on real disposable income. CBO anticipates that the rate of growth of all categories of consumption will slow in 1987.

Business Fixed Investment

Business fixed investment was soft in 1986, and the near-term outlook suggests more of the same or only modest improvement. Following two years of strong growth, business capital spending declined about 1 percent in 1986. Investment in producers' durable equipment increased moderately, by about 4 percent, but this increase was more than offset by an estimated 12 percent decline for business structures (see Table I-8).

Although several special factors contributed to the weakness in capital spending in 1986, the current low rates of capacity utilization for existing capital constitute a general drag on further capital spending. Capacity utilization recovered sharply from the 1982 recession, from an

unusually low base, but then leveled off very early in the recovery at about 80 percent (see Figure I-14). In 1986, capacity utilization slipped to about 79 percent. Capital spending followed a similar pattern.

Two special situations contributed significantly to the weak spending on business structures. First, the drop in oil prices in early 1986 caused a sharp contraction in oil drilling--a major component of business structures (see Figure I-15). Investment in petroleum structures, which includes drilling, fell from an annual rate of $32 billion (in 1982 dollars) in the fourth quarter of 1985 to $18 billion in the third quarter of 1986. This one category accounted for about two-thirds of the overall decline in spending for business structures during that three-quarter period.

The other special situation involved the end of the boom in office building. Investment in office buildings increased more than 18 percent from the late 1970s, peaking in the second quarter of 1985. Despite very high and rising vacancy rates, the level of investment in office buildings remained high throughout 1985 and the first quarter of 1986. Earlier changes in tax laws were a major factor fueling the boom, particularly the rapid depreciation introduced with the Economic Recovery Tax Act of 1981. While the rate of depreciation permitted for tax purposes was reduced in 1982 and again in 1985, it remained considerably more rapid than it had been before 1981. The Tax Reform Act of 1986, however, substantially reduced rates for depreciation of structures and sharply curtailed other features of

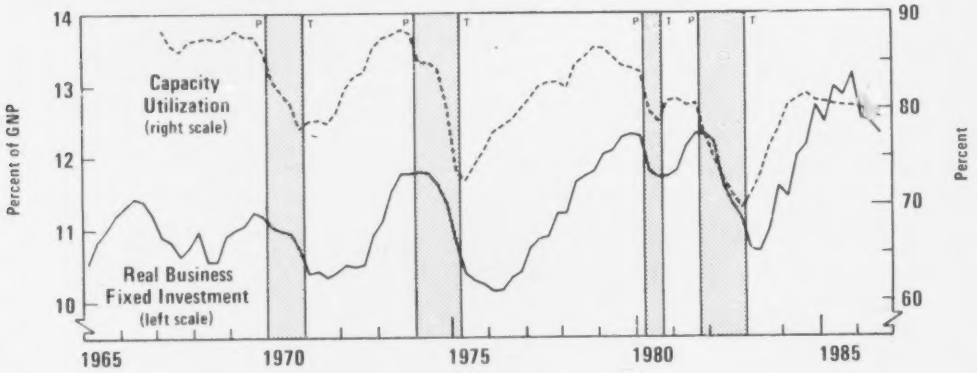
TABLE I-8. RECENT TRENDS IN REAL BUSINESS FIXED INVESTMENT (Percent change at annual rates)

	1983	1984	1985	1986 a/	1986 I	1986 II	1986 III
Total	-1.5	16.9	9.3	-1.1	-15.1	-0.9	-2.1
Producers' Durable Equipment	4.7	20.1	10.1	4.2	-17.0	19.6	1.2
Nonresidential Structures	-11.2	11.1	7.7	-11.8	-10.8	-35.2	-9.8

SOURCES: Congressional Budget Office; Department of Commerce, Bureau of Economic Analysis.

a. Estimated by CBO.

Figure I-14.
Real Business Fixed Investment



SOURCES: Congressional Budget Office; Department of Commerce, Bureau of Economic Analysis; Federal Reserve Board.

tax shelters for commercial real estate. These provisions took effect on January 1, 1987. Tax considerations spurred builders to attempt to finish projects on time to meet the deadline imposed by the change in tax law but discouraged the starting of new projects. 11/

The Outlook for Business Fixed Investment. The near-term outlook for business fixed investment is lackluster. On the positive side, most of the adverse effects on investment from the drop in oil prices should be over. The number of oil rigs in operation has increased steadily since mid-1986. There are numerous negative signs, however. One near-term bellwether--new orders for nondefense capital goods--has fluctuated within a rather narrow band for the last several quarters (see Table I-9). Another indicator, new capital appropriations of large manufacturing firms, declined sharply through the first three quarters of 1986. The rate of capacity utilization remains below 80 percent. Corporate profits and net cash flow have remained at fairly high levels during 1986, but the aggregate profit data mask weaknesses in several major manufacturing industries including petroleum and primary metals. Financial markets have provided some of the bright spots: the cost of borrowing, as measured by the rate on high-grade bonds, fell by about two percentage points during 1986 to a level

11. Investment in industrial structures was also quite weak in 1986, but this kind of building had not previously experienced a boom.

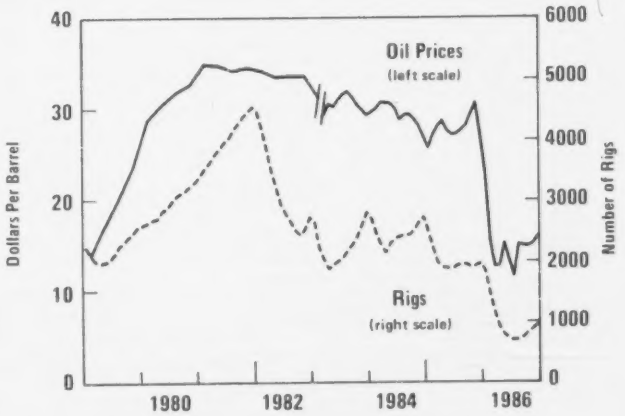
not seen for eight years. The stock market hit new daily highs early this year.

On balance, tax reform may have a negative impact on investment in 1987. Although passage of tax reform removes an important source of uncertainty for investors, a number of changes in business taxes tend to reduce incentives to invest. For example, as discussed earlier, many of the tax advantages from investing in commercial real estate were sharply curtailed on January 1, 1987. In addition, the investment tax credit for equipment was repealed (effective January 1, 1986), and allowable depreciation rates have been modestly reduced on most equipment. On the other hand, business investment spending would respond positively to any increase in personal consumption that may occur as a result of the cut in personal income taxes.

According to recent survey data of businesses' plans for capital spending, there may be little if any real growth in investment in 1987. The Commerce Department's survey shows that planned nominal spending is up only slightly over 1986 levels--a real increase of only 0.2 percent after adjusting for inflation (see Table I-9). The smaller survey conducted by McGraw-Hill indicates that businesses will reduce real outlays about 3.1 percent in 1987.

Though the average growth in business investment for 1987 will be low, investment should begin to recover by the end of the year. An acceleration of investment depends crucially on the behavior of net exports, however. If trade in manufactured goods does not improve substantially, little in the outlook would indicate an increase in investment spending.

Figure I-15.
Oil Prices and Oil Rigs in Operation



SOURCES: Congressional Budget Office; Central Intelligence Agency, Directorate of Intelligence; New York Mercantile Exchange; Hughes Tool Company.

NOTE: The price series is the official OPEC price (quarterly data) until 1983:I. The N.Y. Mercantile Exchange forward price for oil to be delivered in the next month is used thereafter.

TABLE I-9. CURRENT INDICATORS OF BUSINESS FIXED INVESTMENT AND SURVEYS OF CAPITAL SPENDING PLANS FOR 1987

	1984	1985	1985 I	1985 II	1985 III	1985 IV	1986 I	1986 II	1986 III
Current Indicators									
Nondefense Capital Goods Orders (billions of dollars per month)	26.9	27.2	26.8	26.3	27.8	27.8	26.5	26.2	27.3
Manufacturers' Capital Appropriations (billions of dollars, quarterly rate) a/	29.4	27.2	29.9	27.6	24.2	27.2	23.4	20.0	20.2
Capacity Utilization (percent)	81.0	80.4	80.7	80.5	80.3	80.2	80.0	79.2	79.1
Corporate Economic Profits (billions of dollars, annual rate) b/	265	281	266	274	296	286	296	293	302
Corporate Net Cash Flow (billions of dollars, annual rate) c/	345	375	361	372	389	380	391	386	390
Corporate AAA Bond Rate (percent)	12.7	11.4	12.3	11.6	11.0	10.6	9.6	9.0	8.8
Standard and Poor's 500 Stock Index (annual percent change)	0.0	16.4	32.7	18.0	7.8	19.7	55.5	43.1	1.0

Surveys of Capital Spending Plans for 1987 (In percents)

	Nominal	Real
Department of Commerce d/	0.9	0.2
McGraw-Hill e/	0.4	-3.1

SOURCES: Congressional Budget Office; Department of Commerce, Bureau of Economic Analysis; McGraw-Hill, Inc.; Conference Board; Federal Reserve Board.

a. Because of the seasonal adjustment, the annual figure does not equal the average of the quarterly figures.
b. Economic profits are adjusted for inventory valuation and capital consumption allowances.
c. Net cash flow equals corporate retained earnings with inventory valuation adjustment, plus economic depreciation.
d. Conducted in October and November 1986.
e. Conducted in September and October 1986.

Inventories

Changing petroleum prices and the incentive programs for auto purchases caused large quarter-to-quarter swings in nonfarm business inventories in 1986. In general, though, the rate of accumulation was slightly below the rate of growth of final sales. High real interest rates and the low rate of inflation in commodity and producer prices may have discouraged inventory accumulation. The downtrend in the inventory-to-sales ratio could also have been caused in part by the foreign trade deficit, since manufacturers' inventories declined over the year even as wholesale and retail trade inventories were being built up. By contrast, U.S. stocks of petroleum and petroleum products increased sharply, apparently in anticipation of higher prices and greater demand.

Although real short-term interest rates are expected to fall, and the projected turnaround in the trade balance will probably be accompanied by rising inventories for manufacturers, the relatively slow growth in final sales will hold down inventory growth. In addition, petroleum inventories will probably not match their 1986 growth, and auto manufacturers will probably keep inventories leaner this year to avoid having to repeat costly incentive programs. In short, nonfarm business inventories are expected to increase by about the same amount in 1987 as last year.

Residential Construction

After flirting with an annual rate of 2 million units in early 1986, housing starts slumped at midyear and continued to slow throughout the second half, though for the year as a whole they remained above 1985 levels. The slowdown was evident in both single-family and multifamily starts as different factors combined to buffet both ends of the market.

Single-family units, which are more directly affected by demand factors, held up very well early in the year because of declining mortgage rates and gains in personal income. Declines in real personal disposable income in the third quarter of last year, and a leveling off of the decline in mortgage rates in the last half of the year, reduced the pace of new home sales, however. With the inventory of new homes growing, builders quickly reduced the number of new starts. More recent data indicate that the slowdown in the single-family market has bottomed out. With interest rates expected to remain relatively stable and real disposable income expected to grow modestly over the rest of this year, single-family starts in 1987 should fall only slightly below the 1986 average.

While demand factors influenced the market for single-family homes, changes in the tax laws and rapidly rising rates of rental vacancies caused a sharp decline in the number of multifamily starts. Apparently, the bulge in this sector that occurred early in 1986 was in anticipation that changes in the tax code would limit tax shelters. Once those changes became law, multifamily starts dropped precipitously. Moreover, with vacancy rates higher than at any time since the late 1960s, it may take some time to absorb the oversupply. Thus, 1987 may be a year of continued weakness in this sector.

Net Exports

Real net exports proved to be weaker in 1986 than previously anticipated. Though exports appeared to be recovering in the second half of the year, the volume of imported nonoil merchandise grew faster than real GNP for most of 1986, and those imports slowed overall real growth.

Given the dollar depreciation since the first quarter of 1985, the rate of increase in prices of nonoil merchandise imports continued to be low until the second quarter of 1986. This may have been part of the reason imports grew more than they were expected to. Major foreign exporters and U.S. distributors of imported goods probably absorbed a significant proportion of the dollar's depreciation against some currencies by maintaining profit margins that are low relative to levels when the dollar was very strong. Moreover, the average depreciation of the dollar against the currencies of major suppliers of U.S. imports was much lower than its average decline against the currencies of major industrial countries (see Box I-1).

The volume of exports of nonagricultural merchandise was weak through midyear, but rose substantially in the third quarter. The November trade report indicated, however, that growth of exports in the fourth quarter may not be as strong as anticipated.

Many observers predicted a surge in U.S. agricultural exports following the dramatic decline in U.S. support prices (loan rates) last summer. Despite the drop in support prices, hopes of much higher agricultural exports for the 1986 crop year were dashed by good harvests in the Soviet Union and elsewhere, and because foreign producers protected their market shares by matching the decline in U.S. prices. Agricultural exports did increase significantly in the third quarter, but only by enough to offset purchases delayed earlier when foreigners waited for the preannounced price declines.

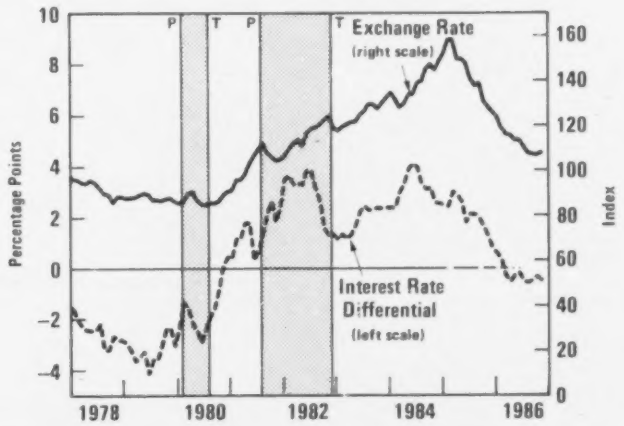
Factors Underlying the Outlook for Net Exports. The dollar exchange rate continues to be the crucial factor influencing the outlook for net exports.

During the second half of 1986, the value of the dollar continued to fall relative to the currencies of other industrial countries despite foreign intervention in its support, as reflected in a rapid accumulation of dollar reserve assets by foreign monetary authorities. By the fourth quarter, the average value of the dollar (as measured by the Federal Reserve Board index based on the currencies of 10 major industrial countries) was about 32 percent below its peak in the first quarter of 1985.

The increase in purchases of dollar assets by foreign governments coincided with an apparent weakening of demand for dollars by international private investors. Net private capital flows (total inflows minus total outflows) fell in the first three quarters of 1986, compared with the same period in 1985.

The relative weakness in underlying international private demand for U.S. dollars is the result of the sluggish performance of the U.S. economy and a relatively accommodative U.S. monetary policy. While monetary conditions have also been mildly expansionary in most other major industrial economies, and both short- and long-term interest rates abroad have declined, foreign interest rates have declined more slowly than have U.S. rates. The resulting differences in interest rates favor, on average, other major currencies as investment vehicles. Both nominal and real (inflation-adjusted) short-term interest rates for the United States are lower than their average foreign counterparts, and both nominal and real long-term interest rates have moved against the dollar recently (see Figure I-16).

Figure I-16.
The Exchange Rate and Relative Interest Rates



SOURCES: Congressional Budget Office; Federal Reserve Board; International Monetary Fund.

NOTE: The exchange rate is a trade-weighted average of dollar exchange rates. The real interest-rate differential is the difference between long-term real interest rates for the United States and a GDP-weighted average for other industrial countries. Long-term real interest rates are long-term nominal interest rates (on government bonds), adjusted for expected inflation rates. Expected inflation is proxied by a two-year centered moving average of actual and projected CPI inflation rates.

The Congressional Budget Office assumes that the value of the dollar relative to the currencies of major foreign industrial countries will decline over the forecast period, but at a slower rate than in the past year. If international private demand for dollars weakens further (or if foreign monetary authorities curtail the rate of accumulation of dollar assets), the dollar will probably depreciate more sharply than CBO assumes. On the other hand, if there is sufficient firming of U.S. interest rates and if monetary conditions abroad become sufficiently relaxed, the dollar exchange rate against major currencies may stabilize.

Movements in the dollar exchange rates vis-a-vis the currencies of Latin America and the countries of the Pacific Rim are also very important to the outlook for net exports because these countries are major U.S. trading partners and competitors. The value of the dollar relative to these currencies continued to rise on an inflation-adjusted basis in 1985 and 1986, even as its value declined against the currencies of the 10 industrial countries included in the Federal Reserve Board exchange-rate index. CBO assumes a moderate decline over the forecast period in the real value of the dollar relative to the currencies of the most important developing countries. As explained in the accompanying box, however, the uncertainty attached to this assumption is large for a variety of political and economic reasons. Thus, the outlook for a significant proportion of U.S. imports--and the relative competitiveness of U.S. exports--remains highly uncertain.

The outlook for net exports depends also on expected inflation and real growth among U.S. trading partners. Inflation in the major industrial economies of Europe, Canada, and Japan is expected to remain very low over the next couple of years, because of movements in exchange rates and continued weakness in primary commodity prices. The major foreign industrial economies are expected to maintain an average real growth rate of 2.5 percent to 3.0 percent per year despite expected weakening of their real net exports and continued or strengthened restraint in government fiscal policies. Inflation in the newly industrialized countries (NICs) of Asia is expected to remain moderate, but average inflation in Latin America is forecast to remain very high and volatile. Thus, the outlook for inflation in the developing countries is a substantial contributor to the uncertainty of real exchange rates mentioned previously. Largely because of low growth among the fuel exporters, the average real growth rate was low in 1986 for the developing countries that are important to U.S. exports. But this growth rate is expected to move well above the 3 percent level in coming years.

The Outlook for Net Exports. Exports of nonagricultural merchandise should provide a strong stimulus to U.S. real growth in each year of the forecast.

BOX I-1
THE EXCHANGE VALUES OF THE DOLLAR

The value of the dollar reached its peak in the first quarter of 1985. How much it has depreciated since then varies according to which exchange-rate index is used. One commonly used measure is the Federal Reserve Board exchange-rate index, which comprises currencies of 10 major industrial countries weighted in proportion to their respective shares in world trade. According to that index, the dollar, in real (inflation-adjusted) terms, depreciated by 31 percent between the first quarter of 1985 and the third quarter of 1986.

The exchange rate can also be measured against the currencies in the Federal Reserve Board index plus the currencies of developing countries and newly industrialized countries (NICs), with two variations in the weighting scheme. If the weighting scheme continues to reflect shares in world trade--as is important for measuring the competitiveness of U.S. exports in world markets--then the real depreciation of the dollar is significantly lower, at 23 percent. But if the currencies are weighted to reflect bilateral nonoil imports--giving much greater weight to major import suppliers such as Canada--then the real depreciation of the dollar is lower still, at only 16 percent.

Measured against only the currencies of developing countries and NICs, the dollar actually appreciated in real terms by between 5 percent and 8 percent and was virtually flat against the Asian NIC currencies alone (those of Hong Kong, Singapore, South Korea, and Taiwan). Thus, the Asian NIC currencies depreciated in real terms against the European currencies and the yen by about the same percentage as the U.S. dollar. The depreciation of their currencies sharply improved their competitive position, as reflected in their increased exports, to both Europe and the United States. Rather than allowing the bulging trade surpluses to cause their currencies to appreciate, monetary authorities of the Asian NICs chose to step up the accumulation of dollar assets. Their resistance to appreciation of their respective currencies is manifested both in high rates of growth in their money supply and in very large additions to their official holdings of foreign exchange reserves. Recently, some Asian NICs have been subject to growing external political pressures to appreciate their currencies. If they do not succumb to these pressures, the Asian NICs eventually may suffer a severe bout of domestic inflation that would appreciate their currencies against the U.S. dollar in real terms.

The real value of the dollar has appreciated substantially against the currencies of developing countries largely because of a massive devaluation of the Mexican peso. Some Latin American countries plan further devaluations to counter domestic inflation, which is exceptionally high. It is very difficult, however, to keep adjustments in exchange rates and domestic inflation in balance. Thus, the future real value of the dollar in relation to the currencies of developing and newly industrialized countries is subject to considerable uncertainty on the up side as well as the down side.

As argued previously, however, the strong downside and upside risks that are attached to the assumed exchange rates make this a particularly uncertain projection. If the newly industrialized countries of Asia are able to prevent real appreciation of their currencies, they could provide strong competition to future U.S. sales of nonagricultural merchandise in the European and Japanese markets. Real agricultural exports are not expected to make a significant contribution to the growth in real GNP in 1987 and 1988.

Although the November trade release indicates a further worsening of the merchandise trade deficit in the last quarter of 1986, CBO forecasts a decline in the rate of growth of real imports of nonoil merchandise in both 1987 and 1988. The volume of petroleum imports should decline in early 1987, as domestic oil refiners adjust to the accumulation of relatively large stocks and higher prices this winter (following the recent OPEC production agreement) and the possibility of lower prices next spring and summer.

Although the real net balance on service flows other than investment income is very small, it is expected to improve in 1987 and 1988. On the other hand, flows of net investment income, on a National Income and Product Accounts (NIPA) basis, fell in real terms during the second quarter of 1986. Although they rose in the third quarter of the year, they are expected to fall in real terms over the entire forecast period, as the growth of U.S. holdings of foreign assets relative to foreign holdings in the United States declines. U.S. net foreign liabilities could reach half a trillion dollars by the end of 1988.

Government Purchases

The public sector contributed to the growth of aggregate demand during the second and third quarters of 1986, as real purchases by the federal, state, and local governments rose at an annual rate of 9.7 percent. In contrast, spending in this sector is expected to grow more slowly than GNP throughout most of the forecast period.

The Federal Sector. On a National Income and Product Accounts basis, real federal purchases (excluding the activities of the Commodity Credit Corporation) grew very rapidly during the second and third quarters of 1986 (see Table I-10). This strong growth was entirely attributable to a surge in defense purchases (both durables and nondurables) that more than offset a continuing decline in nondefense purchases. Under the deficit restrictions of the Balanced Budget Act of 1985, the level of federal purchases is projected to decline over the forecast period.

The State and Local Sector. Real purchases by state and local governments also showed very strong growth in the second and third quarters, reflecting near-record growth in construction spending. This surge in construction followed record borrowing by states and localities in the past two years. The level of spending for construction is expected to climb somewhat into next year, especially if the highway authorization bill is enacted soon. But, thereafter, construction activity is expected to decline. With slow to moderate growth in other purchases, the state and local sector will not be a source of stronger growth.

The operating surplus of state and local governments amounted to $15.6 billion in the first quarter of 1986, $3.9 billion in the second quarter,

TABLE I-10. GOVERNMENT PURCHASES OF GOODS AND SERVICES
(By calendar year, on a national income accounting basis)

	1984	1985	1985 III	1985 IV	1986 I	1986 II	1986 III
			Billions of 1982 Dollars				
Federal a/	293.9	311.3	318.4	314.9	314.0	324.4	333.4
Defense	219.4	235.8	242.2	239.3	238.7	249.3	259.4
Nondefense a/	74.4	75.6	76.1	75.6	75.3	75.0	74.0
State and Local	383.5	397.6	401.9	402.2	404.8	413.3	419.5
Structures	45.1	48.2	51.0	48.5	48.7	54.9	58.5
All other	338.4	349.4	350.9	353.7	356.1	358.4	361.0
			Percent Change (annual rate)				
Federal a/	5.3	5.9	12.2	-4.3	-1.0	13.9	11.6
Defense	6.0	7.5	15.8	-4.7	-1.0	19.0	17.2
Nondefense a/	2.8	1.6	1.1	-2.6	-1.6	-1.6	-5.2
State and Local	2.6	3.7	5.1	0.3	2.6	8.7	6.1
Structures	5.1	6.9	19.3	-18.2	1.7	61.5	28.9
All other	2.2	3.3	3.3	3.2	2.7	2.6	2.9

SOURCES: Congressional Budget Office; Department of Commerce, Bureau of Economic Analysis.

a. Excludes purchases and sales by the Commodity Credit Corporation.

and $8.3 billion in the third. The large surplus in the first quarter included a special nonrecurring receipt of $8.2 billion (from fines against Exxon); in the third quarter, states received a $2.7 billion acceleration of the final payment for general revenue sharing from the fourth quarter. CBO forecasts a swing to small operating deficits for state and local governments in 1987, as grants-in-aid are reduced and a greater proportion of construction spending is financed by debt. Although most states with income taxes stand to reap windfall revenues from the Tax Reform Act of 1986, this windfall will do little to improve the operating balances in this sector, particularly since many of these states are considering passing this windfall through to their taxpayers. At the same time, surpluses in state and local trust funds are expected to continue growing, but more slowly than in recent years. As a result, the overall budget surpluses of this sector will provide less of an offset to federal borrowing.

CHAPTER II

THE BUDGET OUTLOOK

The Congressional Budget Office projects that the baseline federal deficit will fall from $221 billion in fiscal year 1986 to $174 billion in 1987, $169 billion in 1988, and $85 billion in 1992. The deficit shrinks because revenues are boosted by both inflation and real economic growth, while outlays rise only slightly faster than the rate of inflation. Compared with the size of the nation's economy, the baseline deficit falls from 5.3 percent of gross national product (GNP) in 1986 to 4.0 percent in 1987 and 1.4 percent in 1992. While the federal debt will continue to grow as long as the government runs deficits, the debt is projected to reach a plateau of about 44 percent of GNP in the 1988-1990 period. Table II-1 summarizes the CBO baseline projections for total federal revenues, outlays, and the deficit, including off-budget items.

Although baseline deficits are declining, they still substantially exceed the targets established by the Balanced Budget Act, as pictured in Figure II-1. The 1988 deficit would have to be cut $61 billion below the baseline to reach the legislated goal of $108 billion. If these deficit reductions are not enacted before August 15--and the target is not changed--the Congress will be faced with voting on large across-the-board spending reductions. The calculation of these spending reductions is based on a deficit measure that differs from the CBO baseline, as explained in Box II-1.

The projections are based on the CBO short-run economic forecast and long-run economic assumptions described in the previous chapter. The baseline projections also assume that current taxing and spending policies will continue unchanged through the five-year projection period. Defense and nondefense discretionary appropriations are assumed to be held constant in real terms; revenues, offsetting receipts, and entitlement spending are projected according to the laws now on the statute books. The baseline projections are, therefore, not forecasts of future federal budgets, since those budgets will doubtless include numerous policy changes. They are, however, a benchmark against which proposed policy changes can be measured. Appendix A provides further details on how current budgetary policy is defined for purposes of the baseline projections.

The projected drop in the deficit is almost $50 billion from 1986 to 1987--much greater than in any later year. Roughly half of this decline stems from one-time factors. First, the Tax Reform Act of 1986 (Public Law 99-514) increases 1987 revenues by $12 billion compared with prior tax law; in 1988, however, it reduces revenues by $2 billion. Second, the Omnibus Budget Reconciliation Act of 1986 (Public Law 99-509) provides for the sale of federal physical and financial assets (including loan prepayments) totaling about $8 billion in fiscal year 1987. Third, releasing offshore oil and gas receipts held in escrow and delaying September 30, 1987, military pay checks by one day together reduce 1987 outlays by about $4 billion. Were any of the asset sales to be postponed, the 1987 deficit could prove to be higher than the current estimate and the 1988 deficit correspondingly lower.

TABLE II-1. CBO BASELINE PROJECTIONS
(By fiscal year)

	1986 Actual	1987 Base	Projections 1988	1989	1990	1991	1992
			In Billions of Dollars				
Revenues	769	834	900	962	1,050	1,138	1,220
Outlays	990	1,008	1,069	1,124	1,184	1,247	1,305
Deficit	221	174	169	162	134	109	85
Balanced Budget Act Target	172	144	108	72	36	0	---
Debt Held by the Public	1,746	1,910	2,077	2,236	2,367	2,473	2,556
			As a Percent of GNP				
Revenues	18.5	19.0	19.2	19.1	19.4	19.6	19.7
Outlays	23.8	22.9	22.8	22.3	21.9	21.5	21.1
Deficit	5.3	4.0	3.6	3.2	2.5	1.9	1.4
Debt Held by the Public	41.9	43.4	44.2	44.4	43.8	42.7	41.3
Reference: GNP (In billions of dollars)	4,163	4,399	4,698	5,033	5,406	5,792	6,186

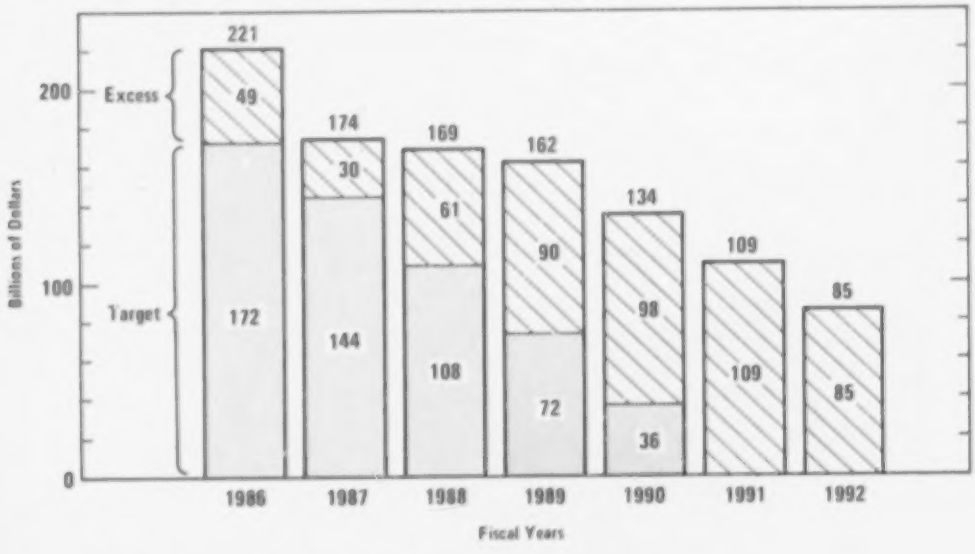
SOURCE: Congressional Budget Office.

NOTE: Totals include Social Security, which is off-budget.

Even aside from such special circumstances, budget projections are highly uncertain. If the economy were to move along the low-growth or high-growth paths described in the previous chapter, the 1988 baseline deficit could be as high as $266 billion or as low as $131 billion. Technical changes in tax and spending patterns might also have a substantial effect on the deficit projections. For example, unforeseen increases in farm price supports, Medicare and Medicaid, unemployment insurance, and other spending programs, as well as technical adjustments to revenues, have increased the 1988 baseline deficit estimate by $17 billion since CBO's last report, as discussed in the next section. In recent years, errors in technical assumptions have caused the estimates in the first Congressional budget resolutions to differ from the actual deficits by an average of $17 billion. Appendix D provides further details on the sources of differences between actual budget totals and first budget resolution estimates.

This chapter focuses on total federal government fiscal activities, including the two Social Security trust funds, which were moved off-budget in 1985. The total federal deficit provides a better measure of the economic significance of federal government activities than does the on-budget deficit alone. Moreover, the estimated total deficit is used in calculating the excess deficit for purposes of the Balanced Budget Act.

Figure II-1.
CBO Baseline Deficit Projections



SOURCE: Congressional Budget Office.

BOX II-1
SPENDING REDUCTIONS UNDER THE BALANCED BUDGET ACT

The Balanced Budget Act establishes a series of declining deficit targets, culminating in a balanced budget in fiscal year 1991. The deficit target for 1988 is $108 billion. Under the fallback provisions of the act, the Congress will consider across-the-board spending cuts under highly expedited procedures if CBO and the Office of Management and Budget (OMB) estimate that the 1988 base deficit exceeds the target by more than $10 billion. The initial CBO-OMB report is due on August 20.

The budget base specified in the Balanced Budget Act differs somewhat from the CBO baseline. If appropriations for fiscal year 1988 have not been enacted five days or more before the reporting date, the law provides that the outlay base assume appropriations at the 1987 dollar level, without allowing for inflation or other adjustments. The law also provides that the outlay base assume pay raises for federal military and civilian employees as recommended by the President, which differs somewhat from the CBO baseline assumptions.

CBO currently estimates that the base deficit for a possible 1988 sequestration is $158 billion. Eliminating the $50 billion excess deficit would require across-the-board reductions in budgetary resources of 14 percent for defense programs and 20 percent for nondefense programs. The figures in the August report will be averages of CBO and OMB estimates and will take account of new legislation, changes in the economy, and other developments affecting the budget outlook.

	(In billions of dollars)		
	Revenues	Outlays	Deficit
CBO Baseline Projection	900	1,069	169
Differences			
Exclusion of discretionary inflation and other adjustments to 1987 appropriations			
Defense programs	---	-5	-5
Nondefense programs	---	-6	-6
Adjustment in net interest costs	---	a/	a/
Total differences	---	-11	-11
Base for Balanced Budget Act	900	1,058	158

a. Less than $500 million.

While the total deficit is projected to decline, this decline masks substantially different trends in the on-budget and off-budget activities, as shown in Table II-2. The on-budget deficit is projected to grow from $193 billion in 1987 to $208 billion in 1989 and then to taper down to $160 billion by 1992. On the other hand, the off-budget Social Security trust funds are running a surplus, which is projected to grow from $19 billion in 1987 to $75 billion in 1992. These surpluses reflect increases in Social Security tax rates scheduled for 1988 and 1990, which are intended both to restore the trust fund balances to a level that would allow benefit payments to continue even in a major economic downturn and to provide adequate long-run financing for the program. By the end of the projections period, the balances in the Social Security trust funds will represent nearly one year's benefit outlays.

TABLE II-2. CBO BASELINE PROJECTIONS FOR ON-BUDGET AND OFF-BUDGET SPENDING AND REVENUES
(By fiscal year, in billions of dollars)

	1986	1987	1988	1989	1990	1991	1992
Baseline Revenues							
On-budget	569	620	660	700	764	828	889
Off-budget							
(OASDI) a/	200	214	241	262	287	310	331
Total	769	834	900	962	1,050	1,138	1,220
Baseline Outlays							
On-budget	806	814	865	908	956	1,004	1,049
Off-budget							
(OASDI) a/	183	195	205	216	229	243	256
Total	990	1,008	1,069	1,124	1,184	1,247	1,305
Baseline Deficit (-) or Surplus							
On-budget	-237	-193	-205	-208	-192	-176	-160
Off-budget							
(OASDI) a/	17	19	36	46	58	67	75
Total	-221	-174	-169	-162	-134	-109	-85

SOURCE: Congressional Budget Office.

a. OASDI = Old-Age, Survivors, and Disability Insurance.

CHANGES IN BASELINE BUDGET PROJECTIONS SINCE AUGUST 1986

Since CBO last published its budget projections in August 1986, several major laws have been enacted. These include the Tax Reform Act of 1986, the Omnibus Budget Reconcilation Act of 1986, and a continuing resolution making appropriations for fiscal year 1987 (Public Law 99-591). Compared with the August baseline, this newly enacted legislation reduced the deficit by $32 billion in 1987, as shown in Table II-3. Because most of the savings were one time, however, legislative action decreased the deficit by an average of only $6 billion in 1988 through 1991. Under CBO's August economic and technical assumptions, Congressional action would have reduced the 1987 deficit to about $151 billion--within $10 billion of the Balanced Budget Act target. But CBO's new economic and technical assumptions raise the 1987 deficit estimate by $23 billion--to $174 billion.

Revised economic assumptions add to the deficit by amounts growing from $10 billion in 1987 to $25 billion in 1991. Lower levels of nominal GNP and changes in the composition of national income cause estimated revenues to be lower by $13 billion in 1987 and $22 billion in 1991. Lower projected interest rates, however, reduce debt service outlays and somewhat attenuate the budgetary effect of the lower revenues.

Technical reestimates, primarily to spending, increase the projected deficit substantially in all years. Medicaid and Medicare spending in 1986 exceeded expectations; this growth is expected to continue, adding $3 billion to spending in 1987 and $7 billion by 1991, compared with the August projections. Changes in the outlook for U.S. agricultural exports, the Administration's establishment of a paid diversion program for feed grains, and other factors increase outlays for farm price supports by $3 billion in 1987 and about $6 billion per year in the 1988-1991 period. Revised defense spending estimates add less than $1 billion to 1987 outlays but about $3 billion per year thereafter. Projected outlays have also risen by an average of $1.5 billion annually for unemployment compensation and $1 billion per year for assistance payments and supplemental security income, reflecting recent spending experience. Finally, based on spending plans of the Federal Deposit Insurance Corporation (FDIC) and of the Federal Savings and Loan Insurance Corporation (FSLIC), estimated federal assistance to troubled financial institutions is projected to grow by more than $4 billion in 1987.

BUDGET PROJECTIONS UNDER ALTERNATIVE ECONOMIC ASSUMPTIONS

Federal government revenues, spending, and the deficit are strongly influenced by economic conditions. Budget projections are, therefore, highly

TABLE II-3. CHANGES FROM CBO AUGUST BASELINE PROJECTIONS (By fiscal year, in billions of dollars)

	1987	1988	1989	1990	1991
Revenues					
CBO August Baseline	828	915	987	1,067	1,148
Enacted legislation	17	6	-3	4	8
Revised economic assumptions	-13	-18	-22	-21	-22
Technical reestimates	2	-2	a/	1	3
Updated Baseline	834	900	962	1,050	1,138
Outlays					
CBO August Baseline	1,012	1,065	1,113	1,162	1,217
Enacted legislation	-15	-4	-3	a/	-2
Revised economic assumptions	-4	-7	-6	-3	3
Technical reestimates	16	15	20	25	28
Updated Baseline	1,008	1,069	1,124	1,184	1,247
Deficit					
CBO August Baseline	184	150	127	96	69
Enacted legislation	-32	-9	a/	-5	-10
Revised economic assumptions	10	11	15	19	25
Technical reestimates	13	17	20	24	25
Updated Baseline	174	169	162	134	109

SOURCE: Congressional Budget Office.

NOTE: Totals include Social Security, which is off-budget.

a. Less than $500 million.

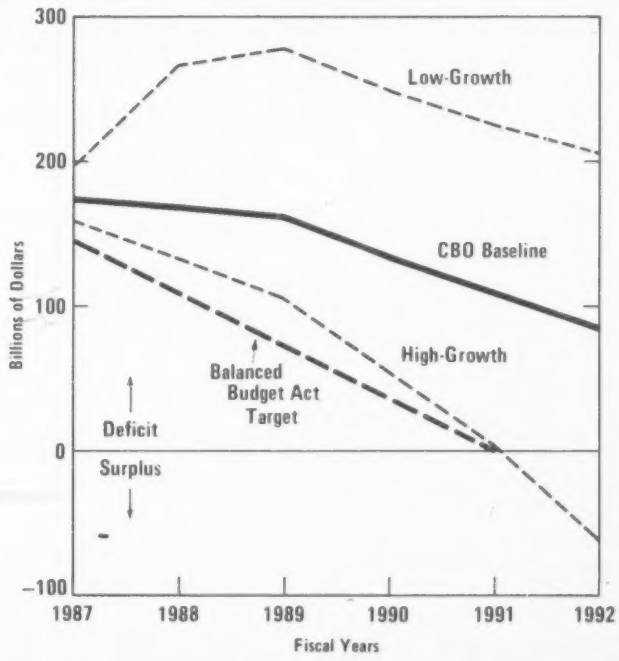
sensitive to the economic assumptions on which they are based. This section illustrates in two ways how the economy affects the budget. First, it shows how the baseline deficit projections would differ under the high-growth and low-growth economic assumptions, summarized earlier in Table I-4. These high-growth and low-growth paths are designed to illustrate the range of possible future economic developments and mirror typical interactions among various aspects of the economy. Second, this section provides some rules of thumb for gauging the budgetary effects of changes in individual economic variables.

High-Growth and Low-Growth Alternatives

The high-growth path is characterized not only by more rapid real economic growth but also by greater inflation than the baseline assumptions. Interest rates are slightly lower during the first two years of the projection period but higher thereafter. The low-growth path assumes a recession in 1987 that is similar in depth and duration to the recession of 1973 to 1975; the assumed recovery is average by postwar standards. Table II-4 compares the budget projections under the baseline and the two alternatives.

Not surprisingly, the high-growth assumptions reduce the projected deficit, so that the 1988 deficit would be $131 billion--$38 billion below the

Figure II-2.
Federal Deficit Under Alternative Economic Assumptions



SOURCE: Congressional Budget Office.

baseline. By 1992, the budget would actually show a surplus of $63 billion under these assumptions, as pictured in Figure II-2. Revenues are consistently higher in the high-growth case than in the baseline. The difference is roughly proportional to the difference in nominal GNP, as additional real growth and inflation both add to taxable incomes. The ratio of revenues to GNP is slightly higher than in the baseline, because the boom economy raises business income as a share of GNP.

TABLE II-4. CBO BUDGET PROJECTIONS UNDER ALTERNATIVE ECONOMIC ASSUMPTIONS (By fiscal year, in billions of dollars)

	1987	1988	1989	1990	1991	1992
Revenues						
High-Growth Alternative	848	930	1,013	1,133	1,274	1,441
CBO Baseline Projection	834	900	962	1,050	1,138	1,220
Low-Growth Alternative	816	828	860	937	1,008	1,071
Outlays						
High-Growth Alternative	1,006	1,062	1,117	1,188	1,277	1,378
CBO Baseline Projection	1,008	1,069	1,124	1,184	1,247	1,305
Low-Growth Alternative	1,015	1,094	1,138	1,185	1,233	1,275
Deficit						
High-Growth Alternative	158	131	104	55	3	-63 a/
CBO Baseline Projection	174	169	162	134	109	85
Low-Growth Alternative	199	266	278	248	225	204

SOURCE: Congressional Budget Office.

NOTE: Totals include Social Security, which is off-budget.

a. Surplus

The pattern of outlay differences is more complex. Because higher growth brings higher inflation, outlays for benefit programs, such as Social Security, are higher than in the baseline. Defense and nondefense discretionary spending, which the baseline holds constant in real terms, are also higher. Initially, these inflationary increases are small and are more than offset by lower spending on unemployment-sensitive programs (primarily unemployment compensation) and on net interest. Net interest outlays are at first below the baseline, then above it, mirroring the differences in interest rates. In total, outlays in the high-growth path are within a few billion dollars of the baseline amounts in 1987 through 1990 but greatly exceed the baseline in 1991 and 1992, when all categories of spending are substantially higher.

In the low-growth path, the deficit remains above $200 billion throughout the projection period. Revenues are much lower than the baseline every year, although they are only slightly lower in relation to GNP. Outlays grow more rapidly at first, as spending increases for programs that are sensitive to the higher unemployment and interest rates; they fall below the baseline in the last two years in response to the lower rate of inflation.

Social Security trust fund surpluses and balances continue to grow throughout the projection period under both the high-growth and low-growth assumptions. In the high-growth case, trust fund balances at the beginning of 1992 represent 100 percent of 1992 outlays--slightly above the 94 percent ratio achieved under the baseline economic assumptions. In the low-growth case, however, the trust fund ratio is only 67 percent. The low-growth alternative has a less adverse effect on Social Security than the 1973-1975 and 1980 recessions because, unlike those earlier recessions, it is not characterized by falling real wages.

Rules of Thumb

While the use of consistent alternative forecasts is one way to illustrate the sensitivity of the budget to the economy, the same point may be made in a different fashion. Table II-5 provides some rough orders of magnitude for gauging the effects on the baseline projections of changes in individual economic variables considered in isolation. It illustrates the budgetary effects of a one percentage-point change beginning January 1987 for four variables: real economic growth, unemployment, interest rates, and inflation.

Two rules of thumb--higher real growth and lower unemployment--are closely related. Both paths illustrate the effects of different assumptions

TABLE II-5. EFFECTS ON CBO BASELINE BUDGET PROJECTIONS OF SELECTED CHANGES IN ECONOMIC ASSUMPTIONS
(By fiscal year, in billions of dollars)

Economic Variable	1987	1988	1989	1990	1991	1992
Real Growth: Effect of One Percentage-Point Higher Annual Rate Beginning January 1987						
Change in revenues	4	14	27	43	61	83
Change in outlays	-1	-3	-6	-10	-15	-22
Change in deficit	-5	-16	-33	-52	-76	-105
Unemployment: Effect of One Percentage-Point Lower Annual Rate Beginning January 1987						
Change in revenues	19	30	31	34	36	37
Change in outlays	-3	-6	-8	-11	-14	-17
Change in deficit	-22	-36	-40	-45	-50	-54
Interest Rates: Effect of One Percentage-Point Higher Annual Rates Beginning January 1987						
Change in revenues	0	0	0	0	0	0
Changes in outlays	3	11	16	20	23	26
Change in deficit	3	11	16	20	23	26
Inflation: Effect of One Percentage-Point Higher Annual Rate Beginning January 1987						
Change in revenues	5	14	27	39	53	70
Change in outlays	3	15	26	38	51	64
Change in deficit	-2	a/	a/	a/	-2	-6

SOURCE: Congressional Budget Office.

NOTE: Totals include Social Security, which is off-budget.

a. Less than $500 million.

about overall economic activity. Both assume that a 1.0 percentage-point increase in real output is associated with a 0.4 percentage-point decrease in the unemployment rate, as might be caused by an increase in aggregate demand. In the higher-growth case, real GNP growth is 1 percent higher than the baseline every year, causing fiscal year 1992 GNP to be more than 5 percent above its baseline level. In the lower unemployment case, there is a one-time increase in the growth rate; the level of real GNP is 2.5 percent above the baseline for the entire period.

Both the higher real growth and lower unemployment alternatives thus show higher revenues, lower outlays, and lower deficits. Only the pattern is different. The improvement in the deficit resulting from a percentage-point increase in the real growth rate is small at first but increases substantially each year. In the case of a percentage-point drop in the unemployment rate, the improvement in the deficit is much larger to begin with but grows relatively little.

The rapid increase in the federal debt, resulting from a series of large deficits, has made the budget extremely sensitive to interest rates. As shown in Table II-5, a one percentage-point increase in all government interest rates would increase the deficit by $11 billion in 1988 and by $26 billion in 1992. Virtually all this increase in the deficit is attributable to higher net interest outlays. For simplicity, no change in revenues is assumed in the rule of thumb on interest rates. With the level of GNP fixed by assumption, an increase in interest rates is likely to raise personal interest income at the expense of more heavily taxed corporate income and, therefore, to reduce revenues. This reduction in revenues more than offsets the increase in Federal Reserve profits resulting the higher interest rates.

An increase in inflation would have little effect on the deficit. Most expenditures are either explicitly or implicitly adjusted for inflation. The baseline budget projections and the calculations shown in Table II-5 also assume that both defense and nondefense discretionary appropriations are adjusted to keep pace with inflation. The Tax Reform Act of 1986 temporarily suspended indexing of the personal income tax. Individual income tax brackets and standard deductions are indexed for inflation beginning in 1989, after a two-year pause; the personal exemption is indexed again beginning in 1990. The inflation rule of thumb also holds real interest rates constant--that is, it assumes that nominal interest rates will rise by one percentage point with a one percentage-point increase in inflation.

Under these assumptions, inflation increases revenues and outlays almost equally. While the nominal value of the deficit declines only slightly,

the higher inflation raises GNP and causes the deficit-to-GNP ratio to fall. In 1992, for example, the deficit would represent 1.2 percent of GNP in the higher inflation scenario, compared with 1.4 percent in the baseline. If discretionary appropriations were not adjusted for the increased inflation, the deficit would be $2 billion lower than the baseline in 1988 and $29 billion lower in 1992.

These rules of thumb paint only a stylized picture of the relationship between the budget and the economy, of course, because a sustained change in one economic variable does not generally occur without changes in other variables as well. Moreover, because CBO does not rely on rules of thumb for preparing its budget projections, they only approximate how the CBO baseline budget projections would change with such changes in the economic outlook.

SPENDING PROJECTIONS BY MAJOR CATEGORY

Outlays are projected to grow by 1.9 percent in 1987, the lowest rate of increase since 1965. In part, outlays are held down by asset sales and other one-time savings. In addition, net interest outlays are projected to drop slightly in 1987 as maturing federal debt is refinanced at current and lower interest rates. Four budget functions--national defense, Medicare, Social Security, and net interest--account for 69 percent of outlays in 1987 and absorb 83 percent of 1987 revenues. (Appendix B contains functional totals for spending.)

The unusually slow rate of growth of outlays in 1987 may herald a longer-run trend. Over the whole 1987-1992 period, spending is projected to grow at an annual rate of 5 percent if policies do not change--substantially below the 10 percent annual growth rate actually experienced earlier in the 1980s. Adjusted for inflation (as measured by the GNP deflator), real outlays grow by less than 1 percent per year from 1987 to 1992, compared with 4 percent annually from 1980 to 1986. Several factors contribute to the projected slowdown in the growth of federal spending. These include real reductions in defense appropriations in 1986 and 1987, declines in interest rates since 1984, and recent slackening in the growth of Social Security and other entitlements. In addition, the projections allow for no future real growth in defense or nondefense discretionary spending and no legislated expansion of entitlement programs. Under these assumptions, outlays will decline from their 1985 peak of 24.0 percent of GNP to 22.9 percent of GNP in 1987 and 21.1 percent in 1992 (see Table II-6 and Figure II-3).

National Defense

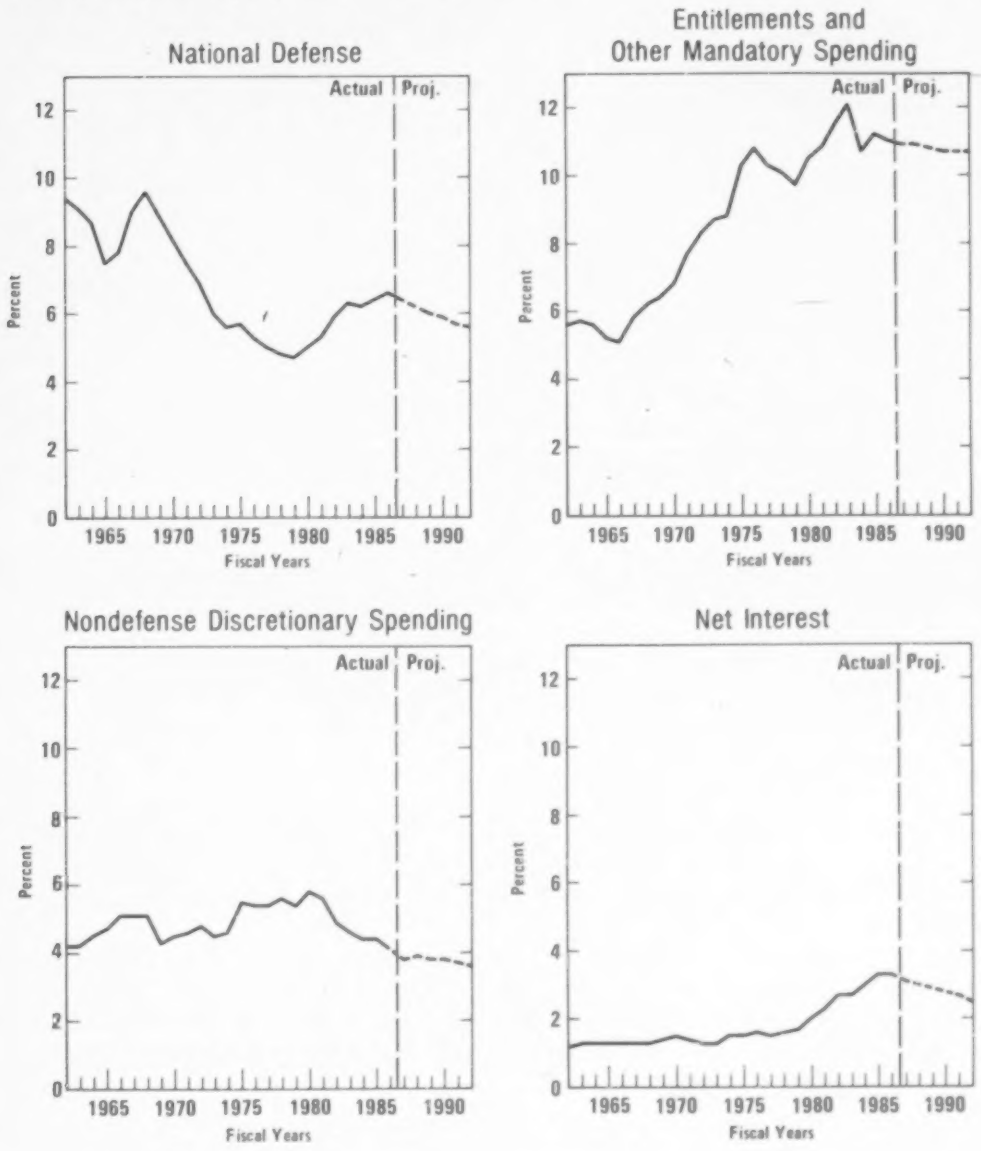
National defense programs include not only the military activities of the Department of Defense but also the nuclear weapons programs of the Department of Energy and miscellaneous activities, such as maintaining defense stockpiles and administering the Selective Service. As it did last year, the CBO defense baseline assumes no real growth in appropriations over the 1987 program level of $289 billion--the same assumption made for nondefense discretionary spending. The resulting budget authority figures--$302 billion in 1988 and $316 billion in 1989--are $1 billion to $2 billion lower than the amounts assumed in the fiscal year 1987 budget resolution.

TABLE II-6. CBO BASELINE OUTLAY PROJECTIONS FOR MAJOR SPENDING CATEGORIES (By fiscal year)

Major Category	1986 Actual	1987 Base	Projections 1988	1989	1990	1991	1992
			In Billions of Dollars				
National Defense	273	280	290	303	317	332	346
Entitlements and Other Mandatory Spending	457	481	512	544	578	617	660
Nondefense Discretionary Spending	170	166	185	193	204	213	220
Net Interest	136	135	141	147	152	155	154
Offsetting Receipts	-47	-53	-59	-63	-66	-70	-75
Total Outlays	990	1,008	1,069	1,124	1,184	1,247	1,305
On-Budget Outlays	806	814	865	908	956	1,004	1,049
Off-Budget Outlays	183	195	205	216	229	243	256
			As a Percent of GNP				
National Defense	6.6	6.4	6.2	6.0	5.9	5.7	5.6
Entitlements and Other Mandatory Spending	11.0	10.9	10.9	10.8	10.7	10.7	10.7
Nondefense Discretionary Spending	4.1	3.8	3.9	3.8	3.8	3.7	3.6
Net Interest	3.3	3.1	3.0	2.9	2.8	2.7	2.5
Offsetting Receipts	-1.1	-1.2	-1.3	-1.2	-1.2	-1.2	-1.2
Total Outlays	23.8	22.9	22.8	22.3	21.9	21.5	21.1
On-Budget Outlays	19.4	18.5	18.4	18.1	17.7	17.3	17.0
Off-Budget Outlays	4.4	4.4	4.4	4.3	4.2	4.2	4.1

SOURCE: Congressional Budget Office.

Figure II-3.
Outlays by Category as Percents of GNP



SOURCE: Congressional Budget Office.

The baseline projections assume zero real growth not only for defense appropriations in total but also for each of its major accounts--military personnel, operation and maintenance, research and development, and so on. As is shown in Box II-2, however, real defense spending in recent years has not increased or decreased at the same rate for all programs. Even if the Congress appropriated $302 billion for defense in 1988, the program mix would almost certainly differ from the 1987 mix, which is assumed here. If the largest increases in budget authority were made in the accounts with the shortest lags between appropriations and outlays, 1988 outlays would be higher than in the baseline. In establishing the defense outlay targets in the Congressional budget resolution, the Budget Committees must, therefore, consider not only the total level of defense resources but also its distribution.

Entitlements and Other Mandatory Spending

An entitlement program is one that provides benefits to any person, business, or unit of government that meets the established eligibility requirements. Authorization for entitlements constitutes a binding obligation of the federal government, and eligible recipients have legal recourse if the obligation is not met. In addition, as described in Appendix A, some other programs are treated as mandatory even though the House and Senate Budget Committees do not consider them entitlements. Baseline outlays for entitlement programs grow at a rate of 6.3 percent per year between 1986 and 1992, or 2.3 percentage points faster per year than the projected growth in the GNP deflator.

Table II-7 divides entitlement and mandatory spending into two broad categories--means-tested and non-means-tested programs. The means-tested category comprises programs that provide cash benefits or services to low-income people. These programs represent about 15 percent of entitlement outlays--$73.4 billion in 1987 and $102.3 billion in 1992. The largest and most rapidly growing program in this category is Medicaid. Others include Food Stamps, assistance payments (primarily Aid to Families with Dependent Children), and Supplemental Security Income. Eligibility for the earned income tax credit, included in Table II-7 under other means-tested programs, was expanded significantly by the Tax Reform Act.

The bulk of entitlement spending consists of non-means-tested programs, predominantly Social Security and Medicare. These two programs constitute about three-fifths of entitlement spending and almost 7 percent of GNP. Social Security grows each year by roughly the rate of inflation plus growth in the beneficiary population that averages 2 percent a year.

BOX II-2
RECENT TRENDS IN REAL DEFENSE SPENDING

The defense budget is about 45 percent higher in 1987 than it was in 1980 after adjusting for inflation. The largest increases occurred in 1981 and 1982, as the table shows. In the last two years, spending authority has declined by about 2 percent per year in real terms. Annual funding growth has been steadiest for military personnel; operation and maintenance; and research, development, test, and evaluation (RDT&E). Military personnel and operation and maintenance are also the two areas of the defense budget where changes in spending authority result most quickly in changes in cash outlays. Funding growth for procurement, military construction, family housing, and other accounts has been much more variable. Real spending authority for these accounts has grown by 20 percent or more for a third of the time but has fallen with equal frequency. Outlays for these accounts have grown smoothly, however, because of longer and more variable time lags between appropriations and outlays.

Annual Real Growth in Defense Spending Authority
(By fiscal year, in percent change)

Account	1981	1982	1983	1984	1985	1986	1987
Military Personnel	2	2	2	2	1	2	1
Operation & Maintenance	9	6	5	5	6	-3	2
Procurement	25	25	17	3	6	-4	-8
RDT&E	13	14	10	14	10	7	4
Military Construction	39	38	-12	-3	18	-6	-8
Family Housing	21	4	20	-5	5	-5	9
Subtotal, Department of Defense--Military	13	12	7	5	6	-2	-2
Other Defense	18	16	24	6	9	-4	a /
Total	13	12	8	5	6	-2	-2

SOURCE: Congressional Budget Office.

NOTE: The figures shown in this table adjust budget authority for transfers and rescissions of unobligated balances. They are conceptually similar to total obligational authority. The 1986 column incorporates the reductions made under the Balanced Budget Act.

a. Less than 0.5 percent.

TABLE II-7. CBO BASELINE OUTLAY PROJECTIONS FOR ENTITLEMENTS AND OTHER MANDATORY SPENDING (By fiscal year, in billions of dollars)

	1986 Actual	1987 Base	Projections				
			1988	1989	1990	1991	1992
Means-Tested Programs							
Medicaid	25.0	27.3	30.0	33.0	36.1	39.4	42.8
Food stamps	11.6	11.8	12.4	12.6	13.1	13.9	14.4
Supplemental Security Income	10.3	10.8	12.2	12.1	11.8	13.5	14.3
Assistance payments program	9.3	9.8	10.2	10.5	11.0	11.5	12.2
Veterans' pension	3.9	3.8	3.8	3.8	3.7	3.7	3.6
Child nutrition	3.8	4.1	4.4	4.7	5.0	5.3	5.7
Guaranteed student loans	3.4	2.6	2.7	2.6	2.6	2.5	2.5
Other	3.1	3.1	4.8	6.1	6.3	6.5	6.8
Total, Means-Tested Programs	70.3	73.3	80.5	85.5	89.6	96.3	102.3
Non-Means-Tested Programs							
Social Security	196.7	205.8	218.5	233.1	249.8	267.3	285.5
Medicare	74.2	78.1	90.0	99.6	111.7	124.7	139.1
Subtotal	270.9	283.9	308.4	332.6	361.5	392.0	424.6
Other Retirement and Disability							
Federal civilian a/	24.1	25.8	27.6	29.8	32.2	34.7	37.4
Military	17.6	18.1	19.1	20.2	21.5	22.8	24.3
Other	4.9	5.0	5.2	5.5	5.7	5.9	6.1
Subtotal	46.6	48.9	51.9	55.5	59.4	63.4	67.8
Unemployment Compensation	17.8	18.0	18.3	19.0	19.2	19.9	20.9
Other Programs							
Veterans' benefits b/	12.9	12.9	13.3	13.3	13.3	13.5	13.7
Farm price supports	25.8	24.8	25.3	24.2	21.8	19.2	18.3
General revenue sharing	5.1	0.1	----	----	----	----	----
Social services	4.0	4.4	4.6	5.1	5.5	5.5	5.4
Other	3.9	14.7	9.8	8.8	8.1	7.4	7.5
Subtotal	51.7	56.8	53.0	51.4	48.6	45.7	44.8
Total, Non-Means-Tested Programs	387.0	407.6	431.6	458.6	488.7	521.0	558.0
Total Outlays	457.3	481.0	512.0	544.1	578.4	617.4	660.3

SOURCE: Congressional Budget Office.

a. Includes Coast Guard retirement.
b. Includes veterans' compensation, readjustment benefits, life insurance, and housing programs.

Medicare grows much faster, because of medical care inflation and increasing use of hospital and physician services. Other retirement and disability programs, primarily federal civilian and military retirement, make up about 10 percent of entitlement spending and grow from $49 billion in 1987 to $68 billion in 1992 in CBO's baseline. Unemployment compensation increases relatively little in CBO's projections--from $18 billion in 1987 to $21 billion in 1992--as the unemployment rate declines from 6.7 percent to 6 percent. The remaining entitlement and mandatory spending programs total $57 billion in 1987 but shrink to $45 billion in 1992. Slow growth in certain programs (such as non-means-tested veterans' benefits) is more than offset by projected declines in spending for farm price supports, the Federal Deposit Insurance Corporation, and the Federal Savings and Loan Insurance Corporation.

Nondefense Discretionary Spending

Nondefense discretionary spending covers all remaining discretionary programs subject to annual appropriations or to loan or obligation limits imposed in appropriation acts. It includes portions of all budget functions except national defense, net interest, and undistributed offsetting receipts. A large part of this category represents the salary and expense accounts that finance the ongoing operations of the civilian agencies of government; these activities include the legislative, judicial, and tax-collecting functions; the conduct of foreign affairs; and the costs of administering Social Security and Medicare. This category also covers about half of the grants to state and local governments, including those for subsidized housing, highways and mass transit, elementary and secondary education, employment and training assistance, and low-income energy assistance. Nondefense discretionary spending declined from 5.8 percent of GNP in 1980 to 4.1 percent in 1986--about the same share of GNP as it represented in 1962. It averages 3.8 percent of GNP in the baseline projections, which generally assume no real growth in appropriations.

Net Interest

Net interest primarily reflects the cost of servicing the government's large and growing debt. While the government owes interest on its borrowing, it also earns interest on certain assets: loans made to the public, cash balances, and so forth. Net interest equals the government's interest costs less its interest income.

In CBO's baseline, net interest grows from $135 billion in 1987 to a projected $154 billion in 1992. Trends in net interest outlays follow the growth in the federal debt and changes in the effective interest rate on this debt. CBO projects that net interest outlays in 1987 will actually be lower than in 1986, even as the government adds substantially to its debt. This decline stems primarily from the gains from refinancing past years' debt at today's interest rates. CBO estimates that over $200 billion in notes and bonds maturing in fiscal year 1987 will be refinanced at new interest rates averaging more than three percentage points lower than their old rates.

Interest outlays resume growing after 1987, as the government's continuing need to borrow outweighs the gains from refinancing the old debt at lower rates. The government's interest earnings also shrink, as loan asset sales, sluggish new lending, and lower interest rates combine to reduce interest income. By 1992, net interest outlays are about 14 percent higher than in 1987, although debt is projected to grow by more than one-third during the same period.

Net interest projections are highly sensitive to assumptions about deficits as well as interest rates. Overly optimistic revenue or outlay estimates, for example, would cause errors in the net interest projections by understating borrowing needs. If revenues are overestimated--or noninterest outlays underestimated--by $10 billion in each year, extra net interest costs would grow from $300 million in 1987 to over $4 billion in 1992.

According to CBO projections, debt held by the public will grow from $1.7 trillion at the end of 1986 to over $2.5 trillion at the end of 1992 (see Table II-8). Debt held by the public represents the federal government's cumulative borrowing over the years from individuals, pension funds, foreigners, and other private holders (including the Federal Reserve System). This measure of the federal debt best reflects the federal government's presence in the credit markets and is the measure most closely related to net interest costs. Debt held by the public grows each year by the amount of government borrowing.

As Table II-8 shows, government borrowing roughly equals the deficit but differs slightly because other factors affect the government's financing needs. For example, in 1986 the government borrowed $15 billion more than the deficit, primarily because it built up cash balances during the year. Other factors that cause the government's borrowing needs to differ from its deficit include interest accrued but not yet paid, checks outstanding, seignorage (the profit from minting coins), and noncash outlays. The FDIC's issuance of special notes to member banks, for example, is counted as a budget outlay but does not lead to an immediate cash outflow.

TABLE II-8. BUDGET FINANCING AND DEBT (By fiscal year)

	1986 Actual	1987 Base	Projections 1988	1989	1990	1991	1992
			In Billions of Dollars				
Budget Financing							
On-budget deficit	-237	-193	-205	-208	-192	-176	-160
Off-budget surplus	17	19	36	46	58	67	75
Total deficit	-221	-174	-169	-162	-134	-109	-85
Means of financing other than borrowing from the public a/	-15	10	2	3	3	4	1
Borrowing from the public	236	165	167	159	131	105	84
Debt Outstanding, End of Year							
Debt held by the public	1,746	1,910	2,077	2,236	2,367	2,473	2,556
Debt held by government accounts	384	454	539	637	750	872	1,001
Total, gross federal debt	2,130	2,364	2,617	2,873	3,117	3,345	3,557
Debt subject to statutory limit	2,111	2,351	2,608	2,870	3,114	3,341	3,553
			As a Percent of GNP				
Debt held by the public	41.9	43.4	44.2	44.4	43.8	42.7	41.3

SOURCE: Congressional Budget Office.

a. Primarily changes in cash balances and adjustments required to put budget on a cash basis.

Though the federal government's debt has grown faster than the economy since the early 1980s, CBO's baseline projections show an end to this trend. The ratio of debt to GNP peaks at 44 percent in the 1988-1990 period. In 1992, the debt-to-GNP ratio is projected to be 41 percent--very close to its current level.

While debt held by the public best measures the economic importance of federal government borrowing, many people are more familiar with a larger figure--the gross federal debt. The gross debt includes very large holdings by federal government trust funds and other special funds. CBO projects that these government account holdings will grow from about $400 billion at present to $1 trillion by 1992, primarily because of large surpluses in the federal civilian and military retirement funds and in Social Security. Interest payments on these holdings are intragovernmental and do not affect the total deficit. Gross federal debt--including both debt held by the public and by government accounts--is similar to the figure voted on by the Congress when it periodically enacts a new statutory debt limit. The current temporary debt ceiling of $2.3 trillion expires on May 15, 1987, and the ceiling reverts to its permanent level of $2.111 trillion.

Offsetting Receipts

Offsetting receipts comprise federal government proprietary receipts from the public that are subtracted from outlays rather than included in revenues, as well as certain intragovernmental transactions. Of the $53 billion estimated in this category for 1987, $31 billion is the federal employer share of employee retirement. Another $7 billion consists of premiums paid by enrollees in Supplementary Medical Insurance (Medicare Part B) and by those who do not have sufficient quarters of coverage for Hospital Insurance (Medicare Part A). The next largest item, $4 billion, is rents and royalties for leases on Outer Continental Shelf tracts. Other receipts are for the sale or lease of minerals, electric power, and timber. Offsetting receipts are projected to represent 1.2 percent to 1.3 percent of GNP in all years of the projection period.

REVENUE PROJECTIONS BY MAJOR SOURCE

Baseline revenues (including off-budget revenues) are estimated to grow by 8.4 percent in 1987, reflecting the projected pickup in economic growth. This revenue growth also reflects, to a lesser extent, recently enacted revenue increases, many of which are not sustained through the projection period. Revenue growth in 1986, a year of disappointing economic performance, was only 4.8 percent. Revenue growth in both 1987 and 1988 is pro-

projected to exceed GNP growth once again, bringing 1988 baseline revenues to $900 billion, or 19.2 percent of GNP.

Since August, new tax data, other budget-related information, and revised economic assumptions have reduced projected revenue growth for the near term and raised it for the out-years. Combined with new legislation, these factors cause revenues to grow faster than GNP over the 1988-1992 period, producing a revenue-to-GNP ratio of 19.7 percent in 1992 (see Table II-9).

The Tax Reform Act of 1986 was far and away the most significant element in the flurry of tax-related legislation enacted at the end of the

TABLE II-9. BASELINE REVENUE PROJECTIONS BY SOURCE (By fiscal year)

Major Source	1986 Actual	1987 Base	Projections 1988	1989	1990	1991	1992
			In Billions of Dollars				
Individual Income	349	361	381	412	458	502	546
Corporate Income	63	101	119	126	138	151	162
Social Insurance	284	301	329	353	383	411	436
Excise	33	33	32	31	32	33	33
Estate and Gift	7	6	6	5	4	4	3
Customs Duties	13	14	15	17	18	19	21
Miscellaneous	20	18	18	17	17	18	18
Total Revenues	769	834	900	962	1,050	1,138	1,220
On-Budget Revenues	569	620	660	700	764	828	889
Off-Budget Revenues	200	214	241	262	287	310	331
			As a Percent of GNP				
Individual Income	8.4	8.2	8.1	8.2	8.5	8.7	8.8
Corporate Income	1.5	2.3	2.5	2.5	2.5	2.6	2.6
Social Insurance	6.8	6.8	7.0	7.0	7.1	7.1	7.1
Excise	0.8	0.7	0.7	0.6	0.6	0.6	0.5
Estate and Gift	0.2	0.1	0.1	0.1	0.1	0.1	0.1
Customs Duties	0.3	0.3	0.3	0.3	0.3	0.3	0.3
Miscellaneous	0.5	0.4	0.4	0.3	0.3	0.3	0.3
Total Revenues	18.5	19.0	19.2	19.1	19.4	19.6	19.7
On-Budget Revenues	13.7	14.1	14.0	13.9	14.1	14.3	14.4
Off-Budget Revenues	4.8	4.9	5.1	5.2	5.3	5.4	5.3

SOURCE: Congressional Budget Office.

last Congress. The bill was intended to be approximately revenue neutral over the five-year period of 1987 through 1991. In the short term, however, the tax act and other new legislation impart revenue swings of as much as $11 billion from year to year from 1988 through 1990. In 1991 and 1992, the new legislation adds roughly 0.1 percent to the revenue share of GNP.

The Tax Reform Act of 1986, passed in the closing days of the last Congress, is the most important piece of tax legislation enacted since World War II. The Internal Revenue Code of 1986 is the first complete revision of the Code since 1954. The act reduces income tax rates, removes many low income earners from the tax rolls, and scales back tax preferences. As mentioned above, the act is designed to maintain longer-run, steady-state revenues. From 1987 through 1992, however, it alternately raises, lowers, and then again raises revenues as older provisions are phased out and new ones are phased in (see Table II-10). Over the 1987-1992 period as a whole, the bill adds about $7 billion to revenues. This increase is offset by a more generous earned income tax credit, the refundable portion of which is counted as a budget outlay. Other recently enacted legislation increases revenues in each year.

The Tax Reform Act significantly reduces personal income tax liability and increases corporate liability. From 1987 through 1992, the act will reduce individual income taxes by almost $130 billion and increase corporate taxes by about $145 billion. It should be kept in mind that this shift in taxes occurs in a system in which the individual tax share of GNP remains relatively high and the corporate tax share rises as profits continue to recover from their recent low levels. Nontheless, the mix of federal taxes will not change significantly (see Figure II-4). By 1992, even with the shift in liability under the act, the individual income tax share of GNP will be relatively

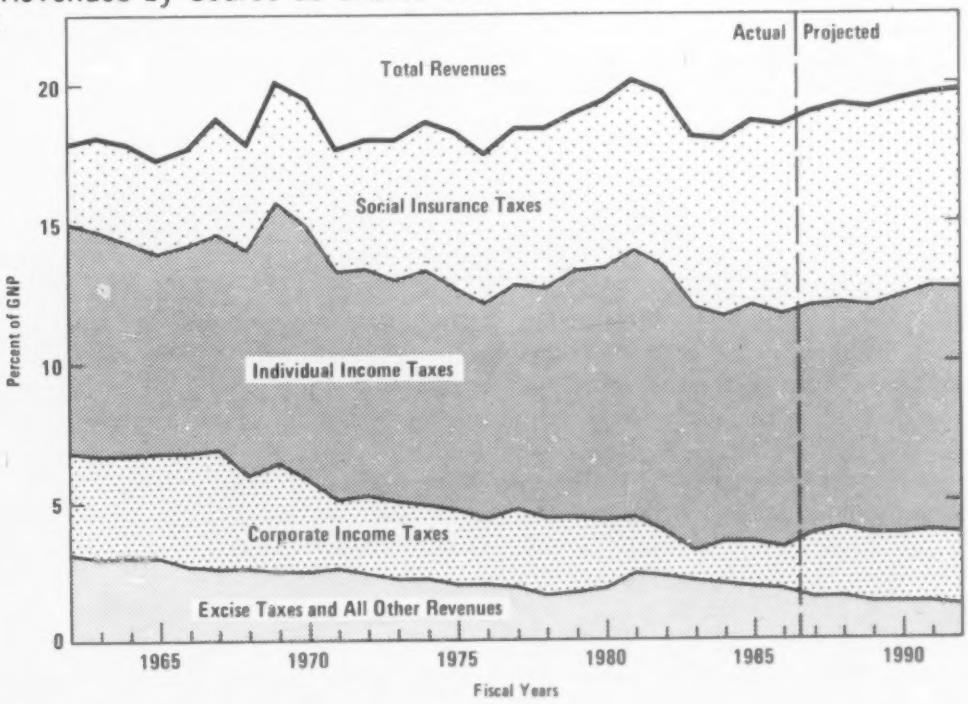
TABLE II-10. REVENUE EFFECTS OF LEGISLATION ENACTED SINCE AUGUST 1986 (By fiscal year, in billions of dollars)

Legislation	1987	1988	1989	1990	1991	1992
Tax Reform Act	11.6	-1.7	-9.6	-1.3	3.7	4.6
Other Legislation	5.4	7.5	6.7	5.5	4.5	4.7
Total	17.0	5.8	-2.9	4.1	8.2	9.3

high by historical standards. At 8.8 percent of GNP, it is just below the 8.9 percent share experienced in 1979 when inflation was driving up personal tax burdens. By 1992, the boosted corporate income tax share of GNP will return to the historically modest levels of the late 1970s, themselves the results of 20 years of decline in the corporate profits share of GNP and reductions in the average tax rate.

Three bills account for almost all the other new revenues. These are the continuing resolution that contained appropriations for fiscal year 1987, specifically the appropriation for the Internal Revenue Service (IRS); the Superfund Amendments and Reauthorization Act of 1986 (Public Law 99-499); and the Omnibus Budget Reconciliation Act of 1986. The largest

Figure II-4.
Revenues by Source as Shares of GNP



SOURCE: Congressional Budget Office.

addition to revenues is expected to result from the appropriation of additional resources for improved compliance and accelerated collection of past taxpayer liabilities. This addition should result from increasing examination of tax returns, reducing the backlog of disputed tax cases, and increasing information return matching. Most of the money to fund these initiatives will be used to hire more IRS examiners and other IRS staff. CBO assumes that the new personnel will be retained in later years. Once in place, these initiatives are estimated to raise tax collections by about $3 billion per year.

The Superfund Act reimposes excise taxes on petroleum and chemical feedstocks with increases in some rates and levies a new broad-based tax on corporations' alternative minimum taxable income. Once in place, these taxes will raise over $1 billion per year. Superfund taxing authority is scheduled to expire after December 31, 1991.

The major revenue-raising vehicle in the Reconciliation Act is the increase in Internal Revenue Service penalties for tax delinquency, which will contribute $800 million to $900 million to the Treasury each year. Most of the other revenue-raising provisions, such as the speed-up in remittance of alcohol and tobacco taxes, have only temporary effects. Other new taxes and fees raise modest amounts of revenue in each year.

BASELINE CREDIT PROJECTIONS

The credit baseline shows the level of new direct loan obligations and primary loan guarantee commitments that, as in the baseline for spending and revenues, would occur with the continuation of current policies. Budget outlays do not accurately portray the cost of federal credit activities (see Box II-3). Consequently, they must be measured separately and analyzed.

Credit programs with appropriated limits on loan obligations or commitments are projected to increase at the rate of inflation. For programs without appropriated limits, the projections represent CBO's best estimate of loan activity. Total federal credit activity in 1987 is estimated to equal $183 billion in new direct loan obligations and new primary loan guarantee commitments. Under the baseline assumptions, total credit activity is projected to decrease to $154 billion in 1988, then slowly climb to $165 billion by 1992 (see Table II-11).

Obligations for direct loans are projected to decrease each year from $42 billion in 1987 to $34 billion in 1992. The decline largely stems from a

BOX II-3
BUDGETARY TREATMENT OF CREDIT PROGRAMS

The current budgetary treatment of federal credit activities gives a misleading picture of program costs and can distort the measure of budget outlays and the deficit. Under the cash-based federal budget accounting system, loan disbursements are scored as outlays and loan repayments are recorded as offsetting collections. This treatment overstates the costs of new loans in the year loans are made. Loan guarantees, on the other hand, have no cash outlays until a default occurs, which has the effect of understating the costs of new loan guarantees in the first year. Furthermore, if fees are charged for new loan guarantees, the short-run effect is to reduce outlays and the deficit since these fees are recorded as offsetting collections. Offsetting collections from loan repayments can be accelerated from the future to the current budget period by loan asset sales. Such sales are now being used to achieve deficit reductions, but they distort the deficit as an indicator of the current economic impact of federal programs. The effect of loan sales on private credit markets is very close to that of federal borrowing.

Most analysts believe that a more appropriate measure of cost for direct loans and loan guarantees is their subsidy cost, or the present value of future defaults, interest losses, capital costs, and administrative expenses. The President's Commission on Budget Concepts recommended in 1967, for example, that only the subsidy elements in federal loans be included with other expenditures when measuring the economic impact of the federal budget.

The Administration proposes to change the way federal credit programs are treated in the budget. Under its proposed reform, new loans would be sold soon after disbursement and new loan guarantees would be reinsured in the private market. The difference between cash disbursements and the proceeds of loan sales would approximate the subsidy value of new loans. Similarly, the cost of reinsuring loan guarantees with the private sector would be a measure of their subsidy value. The proposal uses market transactions, therefore, to convert credit cash flows into a subsidy cost measure that is consistent with the existing budget accounting system.

The Administration's proposal, however, would not eliminate the distortions resulting from selling or refinancing loans made in previous years. In order to do this, a change in the budget accounting system probably would be required. One approach would be to substitute estimated subsidy values for the cash flows associated with credit programs in the budget, as recommended by the President's Commission on Budget Concepts, and treat the credit cash flows as a means of financing the deficit. The substitution of subsidy cost for cash flows would tighten the link between the deficit and the economic impact of the budget. It would also immunize the deficit from the effects of loan sales, refinancing existing loans, and substituting loan guarantees for equal-subsidy direct loans. It would not, however, eliminate the distortions of budget data resulting from the sale of physical assets, the shifting of cash outlays from one fiscal year to an adjacent one, and the creation of new off-budget government sponsored enterprises.

TABLE II-11. CBO BASELINE CREDIT PROJECTIONS
(By fiscal year, in billions of dollars)

Credit Activity	1986 Actual	1987 Base	Projections 1988	1989	1990	1991	1992
Net Direct Loan Obligations							
Commodity Credit Corporation	18	19	17	16	15	13	12
Other	25	23	21	21	20	21	22
Subtotal	43	42	38	37	35	34	34
Primary Loan Guarantees							
FHA and VA	138	106	82	81	84	88	92
Other	22	35	34	36	37	38	39
Subtotal	160	141	116	117	121	126	131
Total	203	183	154	154	156	160	165

SOURCE: Congressional Budget Office.

decrease in commodity price suppport loans, which currently represent about 40 percent of direct federal loans. Commitments for primary guaranteed loans are projected to decrease from $141 billion in 1987 to $116 billion in 1988, then rise to $131 billion by 1992. Housing loan guarantees of the Federal Housing Administration and Veterans Administration, which comprise the vast majority of federal guarantee commitments, are expected to decline 22 percent--from $106 billion in 1987 to $82 billion in 1988--because of a drop in mortgage refinancing.

CHAPTER III

ECONOMIC GROWTH, CAPITAL FORMATION, AND THE FEDERAL DEFICIT

An important consideration for policymakers is the rate at which the economy can be expected to grow in coming years. Economic growth is one of the factors that determine the country's standard of living and the level of public services and programs it can support. The rate of economic growth is also one of the most important variables underlying the CBO longer-term budget projections.

For part of the projection period, CBO has relied on the assumption that the economy would grow in coming years at about its average rate since World War II. Some analysts now question this assumption, on the ground that the rate of growth in recent years has been less than the historical average. If they are right, and if CBO continued to rely too heavily on average historical experience in making its projections, the result would be to project larger federal revenues and lower outlays than are warranted. Policymakers would then be confronted with larger deficits than they had been led to expect.

This chapter examines the growth of the economy with an aim to measuring the slowdown in growth, assessing its causes, and determining whether the slowdown is likely to continue through the 1980s. It also discusses whether past budget deficits have themselves been partially responsible for the slowdown in growth. The chapter ends with a discussion of how different assumptions about economic growth affect the budget projections.

THE GROWTH OF REAL GNP SINCE WORLD WAR II

The average annual rate of growth of real gross national product (GNP) for the last 15 years has been much lower than it was in the first two decades of the postwar period. From 1973 through 1985, the economy grew by only 2.3 percent compared with a rate of 3.7 percent for 1948 through 1973. Because this slowdown occurred during a period when the labor force and employment were growing more rapidly than before, it is particularly troubling.

The more rapid growth in the labor force and employment began in the late 1960s as the postwar baby boom generation entered the labor force.

This more rapid growth was augmented by an increase in labor force participation rates--that is, in the proportion of the population working or seeking work. The combination of two trends--slowing real GNP growth and rising employment growth--implies a massive slowdown in the trend growth of real GNP per person employed. (Trend growth is the rate of growth after the effects of business fluctuations have been removed.) This latter measure grew rapidly until the early 1970s, at an average annual rate of 2.1 percent, but in succeeding years the average fell to 0.5 percent. 1/

The simple comparison of average growth rates for two periods is not enough to show whether there has been a change in the rate of trend growth. Much depends on the choice of time periods--in part because of the business cycle. The comparison given above of GNP growth rates was for the 1943-1973 and 1973-1985 periods. If the first period is changed to 1953-1971 (in order to exclude the Korean War years) and the second period to 1972-1985, the respective average annual growth rates of real GNP are not 3.7 percent and 2.3 percent but 3.1 percent and 2.5 percent--a difference of much lesser magnitude. 2/

The change in the trend growth of real GNP per person employed is not subject to such ambiguity, however. Regardless of the time period chosen, this aggregate measure of productivity has exhibited a significant slowdown since the mid-1960s.

Though the growth rate of productivity is influenced by short-run fluctuations in economic activity, the change in trend growth is clearly the result of long-run factors related to supply. The most important of these factors are:

- Slowing of growth in the amount of capital per worker, perhaps related to budget deficits;
- Higher energy prices;

1. There has not yet been a significant slowdown in the growth of output per capita. In contrast to output per person employed, per capita output grew slowly during the 1950s because of a high birth rate, and as the baby boom eased in the 1960s, per capita GNP growth picked up. It subsequently slowed slightly in the early 1970s, but so far the data do not show that the trend growth rate of per capita output has fallen.

2. Statistical tests for changes in trend growth rate of real GNP indicate that the difference in trend growth rates is statistically significant if the Korean War years are included, but not significant if they are excluded. The statistical significance can be tested by regressing the log of real GNP against time for various periods and then using the standard F-test to determine whether or not the difference in the coefficients of the time variables is significant.

- o Rapid changes in inflation;
- o Acceleration of new entrants into the work force;
- o More government regulation;
- o Reduction in public capital formation;
- o Reduction in research and development, and perhaps in the effectiveness of research and development as well; and
- o Prolonged periods of higher than average unemployment.

POTENTIAL OUTPUT AS AN ALTERNATIVE MEASURE OF GROWTH

In analyzing economic growth, it is important to distinguish long-term movements in total output from short-term or cyclical fluctuations. To do this, economists have introduced the notion of potential output--defined as the highest path of output the economy can sustain without increasing inflation. It is an unobserved measure largely determined by existing technologies and by available supplies of labor, capital, and other productive resources. Public policies can raise potential output through incentives that increase the availability and use of such resources, but potential output is thought to respond fairly slowly to policy changes.

Reasonable estimates of potential output can encompass a fairly wide range of values because of measurement problems and conceptual issues. There is also some disagreement about the usefulness of potential output for policy evaluation, especially as a target at which policymakers should aim. 3/ But most economists agree that a measure of potential output, despite its difficulties, is a useful tool of macroeconomic analysis.

Inflation and Unemployment at Potential Output

The definition of potential output as the highest path of output that can be sustained without increasing the rate of inflation is associated with a widely held view about labor markets--namely, that the demand for labor and

3. For a criticism of potential output as a policy target, see William Fellner, "The High-Employment Budget and Potential Output: A Critique," *Survey of Current Business* (November 1982), pp. 26-33.

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the supply of it are in balance when the growth of money wages is stable. Under such conditions, the rate of price inflation also tends to be constant (but not necessarily zero), and the economy is at its "stable-inflation" rate of unemployment--a rate that excludes cyclical unemployment. 4/ At lower rates of unemployment, the growth of money wages seems to rise continuously, putting upward pressures on the growth of prices; at higher rates of unemployment, the growth of wages and of prices both seem to decline. Thus, the stable-inflation rate of unemployment is an important factor in determining potential output, because it represents labor market conditions that are consistent with a constant growth of money wages, and thus with a constant rate of price inflation.

This link to constant inflation, however, makes potential output a somewhat elusive concept. Actual inflation is affected by many factors outside labor markets, such as food and oil price shocks. Moreover, to some extent inflation is influenced by inflationary expectations, which may adjust slowly to past experience and to forecasts of future policy and other economic events. In other words, the path of potential growth may be influenced in subtle ways by actual growth. For example, if the economy were to grow along its potential path for a considerable period of time, that very fact might alter this growth. Such theoretical points are not considered to be of enormous importance, however, and the stable-inflation rate of unemployment is thought to be fairly constant from year to year. Nevertheless, it is not easy to estimate the stable-inflation rate of unemployment, nor is it easy to determine the corresponding (potential) level of output. 5/

How High Is the Stable-Inflation Rate of Unemployment?

Most estimates of the stable-inflation rate of unemployment show an increase over the years, roughly ranging from between 4 percent and 5 percent in the mid-1950s to between 5 percent and 7 percent since the

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4. In the economics literature, this rate of unemployment is sometimes termed the "nonaccelerating-inflation rate of unemployment" (NAIRU) and sometimes the "natural unemployment rate."

5. In a more general sense, potential output can be defined without reference to the rate of inflation. That is, it can be viewed as the quantity of output that can be produced in the economy, given existing technologies and assumptions about the "normal" utilization rates of available factors of production--mainly capital and labor. In this sense, potential output provides a measure of productive capacity independent of changes in the rate of capacity utilization. For a discussion of this view, see Edward F. Denison, *Trends in American Economic Growth: 1929-1982* (Washington, D.C.: Brookings Institution, 1985).

mid-1970s. 6/ The increase generally is attributed to the influx into the labor market of teenagers and women, who have higher than average unemployment rates. 7/ In principle, factors outside the labor market, such as food and oil price shocks, can temporarily change the stable-inflation rate of unemployment through their impact on actual and expected inflation. Moreover, the stable-inflation rate of unemployment can be affected by public policies such as minimum wage laws, tax incentives, training, and safety-net programs that alter the supply of and demand for labor.

Current CBO Estimates of Potential Output

There are a number of ways to estimate potential output based on a benchmark such as the stable-inflation rate of unemployment. The method used by CBO is described in Appendix A along with the results. In brief, the estimates were based on a postulated statistical relationship (Okun's Law) between actual output and unemployment in excess of the stable-inflation rate of unemployment. 8/ Time trends were added to separate one business cycle from another, and thus to reflect changes in the growth rate of potential output that would show up in the use of more elaborate estimating procedures.

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6. This range of estimates is discussed in Stuart E. Weiner, "The Natural Rate of Unemployment: Concepts and Issues," Federal Reserve Bank of Kansas, *Economic Review* (January 1986), pp. 11-24.

7. The CBO measure of potential output is based on a time series for the stable-inflation rate of unemployment that rises because of demographic factors from about 5 percent in the mid-1950s to roughly 6 percent since the mid-1970s. The source of these estimates is Robert J. Gordon, *Macroeconomics*, third edition (New York: Little, Brown, 1984), Table B-1, Column 6. Somewhat higher estimates are presented by Steven N. Braun in "Productivity and the NIIRU," Board of Governors of the Federal Reserve System, Economic Activity Section Staff Working Paper No. 34 (June 1984).

8. See Arthur Okun, "Potential GNP: Its Measurement and Significance," in *Proceedings of the Business and Economic Stabilization Section of the American Statistical Association* (1962), pp. 98-104. Recently, increased attention has been given to cyclically adjusted measures of output that are not tied to any specific benchmark rate of unemployment. These "trend" measures represent a smoothing of the output series using only information in the series itself. For discussions of such measures, see Peter K. Clark, "The Cyclical Component of U.S. Economic Activity," Research Paper No. 875, Graduate School of Business, Stanford University, August 1986, and Frank de Leeuw and Thomas M. Holloway, "The Measurement and Significance of the Cyclically-Adjusted Federal Budget and Debt," *Journal of Money, Credit, and Banking* (May 1983), pp. 232-242. A related and important study on methodology is A.C. Harvey, "Trends and Cycles in Macroeconomic Time Series," *Journal of Business and Economic Statistics*, 3 (1985), pp. 216-227.

This approach does not explicitly take into account the separate effects on potential output of changes in population growth, labor force participation, average hours of work, or productivity growth. 9/ It also does not explicitly reflect the relationship between potential output and capital formation. The influence of all these factors is implicit in CBO's approach, which estimates the level of output consistent with the stable-inflation rate of unemployment but without estimating the impact of each factor separately.

According to CBO estimates plotted in Figure III-1, potential output grew by 3.7 percent during the 1960s, 3.1 percent during the 1970s, and 2.6 percent since the most recent cyclical peak in the third quarter of 1981. When the growth-rate estimates are based on different subperiods for the time trends, these numbers change somewhat. But regardless of the way the 1953-1986 period is divided, the estimates reveal a declining rate of growth for potential output, beginning roughly in the 1970s.

CAUSES OF SLOWER GROWTH

Most analysts see the slowdown in economic growth beginning around 1973. Real GNP grew at an average rate of 3.7 percent from 1948 to 1973, but only at a 2.3 percent rate from 1973 to 1985--a slowdown of more than one-third or almost 1½ percentage points. Why did this marked slowdown occur? Analysts continue to debate the causes, but something can be learned by examining trends in the labor force and in labor productivity growth (growth in output per hour worked). 10/ Broadly, the data seem to show that slower growth in labor productivity is primarily responsible for the slowing in economic growth. Faster growth in the labor force helped to offset the effect of slower growth in productivity, but did not do so entirely. In the 1980s, productivity appears to have revived considerably in manufacturing and farming but not in the service sector, and labor force growth has slowed somewhat.

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9. Appendix E does, however, break down the growth of potential output into several parts.

10. The discussion here focuses on labor productivity, or real output per hour worked in the business sector. While labor productivity is the measure most widely cited in the business press, "multifactor productivity" measures are also available and are widely used, particularly by economists. Multifactor productivity relates output to a measure of primary inputs including capital.

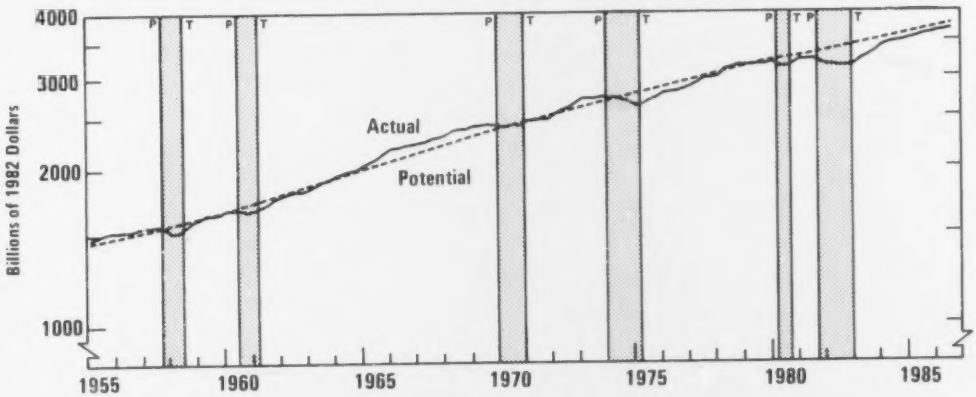
Trends in the Labor Force

The labor force grew roughly twice as fast in the 1965-1981 period as in the earlier postwar period of 1948-1965. After 1981, the growth rate of the labor force fell back nearly to the early postwar level. In the period after 1965, the labor force grew more rapidly both because the working age population grew more rapidly and because the labor force participation rate started to increase. The annual rate of population growth rose by about 0.7 percentage point in the second period compared with the first, and the aggregate labor force participation rate increased about 0.5 percentage point annually. In the 1980s, both population and labor force have grown more slowly than during 1965-1981 (see Figure III-2). The effect on the labor supply, however, has been attenuated by a slower decline in the average length of the workweek.

As shown in Figure III-3, the aggregate civilian labor force participation rate (the ratio of labor force to the population age 16 and older) began increasing in the mid-to-late 1960s, and has continued to rise gradually, almost without interruption, reaching an all-time high of 65.3 percent in 1986--up substantially from an average of 60.4 percent in 1970 and 58.8 percent in 1965.

The upward drift in the aggregate participation rate combines a downward trend among men and an upward trend among women. The bulk of the

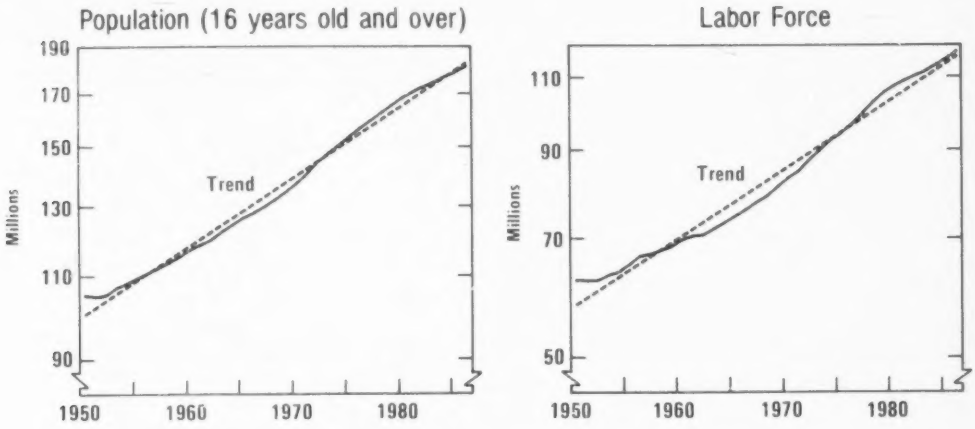
Figure III-1.
Actual and Potential Gross Domestic Product



SOURCES: Congressional Budget Office, Department of Commerce, Bureau of Economic Analysis.

NOTES: Potential GDP estimated by CBO. Vertical axis is a logarithmic scale.

Figure III-2.
Civilian Population and Labor Force



SOURCES: Congressional Budget Office; Department of Labor, Bureau of Labor Statistics.

NOTE: Vertical axes are logarithmic scales.

decline in the participation rate of the male labor force has occurred among older men (ages 55 and older) of all races who have retired, and among younger black men. A major factor prompting earlier retirement is believed to be the growing availability of pensions. In addition, the interaction of the Social Security and federal income tax systems has resulted in very high effective marginal "tax" rates for some groups of older workers. In this case, "tax" is construed broadly to include not only conventional payments to the government but also reductions in income transfers from the government. Several factors--both economic and social--are believed to have caused the rise in female labor force participation rates. After 1973, slower growth in real family incomes may have prompted many women to seek jobs. According to some economists, the entry of the "baby boom generation" into the labor force depressed the relative wages of this group and drove many women into the labor market to meet family income goals. 11/ Other economic factors include new goods and services that have reduced the amount of time needed to care for the family, and the

11. See Richard A. Easterlin, *Population, Labor Force, and Long Swings in Economic Growth: The American Experience* (New York: Columbia University Press for the National Bureau of Economic Research, 1968), p. 165; and Michael L. Wachter, "Intermediate Swings in Labor-Force Participation," *Brookings Papers on Economic Activity*, no. 2 (Washington, D.C.: Brookings Institution, 1977), pp. 545-574.

expansion of industries that have traditionally employed women. Finally, social or cultural factors, such as changed attitudes toward women's roles, have probably contributed to more labor force participation by women.

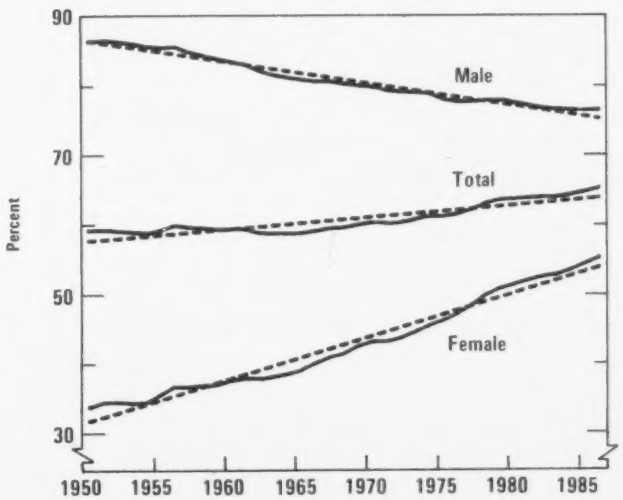
Reasons for the Slowdown in Productivity

Business fluctuations can cause sharp variations in labor productivity in the short run. During recessions productivity tends to decline, or increase less rapidly, and during recoveries it increases especially rapidly. A primary reason is that businesses tend to keep more workers on the payroll than they need during downtimes because workers, especially skilled workers, are costly to replace. As demand picks up, the work force has more to do and growth in productivity rises temporarily above its long-term trend.

Different factors are believed to affect growth in productivity over the long run. One of the most important is the amount of physical capital--such as tools and machinery--used by workers. Higher amounts of capital per worker are associated with increased output per hour worked. Also important are the quality and composition of the capital stock--that is, the degree to which the capital stock embodies the best technology and is allocated to its most productive uses. The development of public infrastructure--such as roads, sewers, airports, and harbors--also contributes to productivity growth in the private sector.

A second major determinant of productivity is the skill, health, and diligence of the work force--sometimes referred to as "human capital."

Figure III-3.
Civilian Labor Force Participation Rates



SOURCES: Congressional Budget Office; Department of Labor, Bureau of Labor Statistics.

Better-trained, more knowledgeable workers mean higher productivity. The demographic composition of workers is also relevant, since all groups of workers are not equally productive. Young workers and--on average--women earn lower wages than adult men, and earnings are in part an indicator of training, experience, and productivity. As women increasingly stay in the labor market and as barriers to their entry into high-productivity jobs are reduced, their experience should increasingly yield earnings and productivity equal to that of men. As with capital, the efficiency with which labor is allocated also contributes to higher productivity. If labor is mobile, for example, workers will shift readily among industries or locations in order to take high-wage, high-productivity jobs.

A third factor in the increase of productivity is the development and introduction of new, more efficient technologies. Investment in research and development contributes (with a lag) to the spread of new technology, but it is only one aspect of a much broader process.

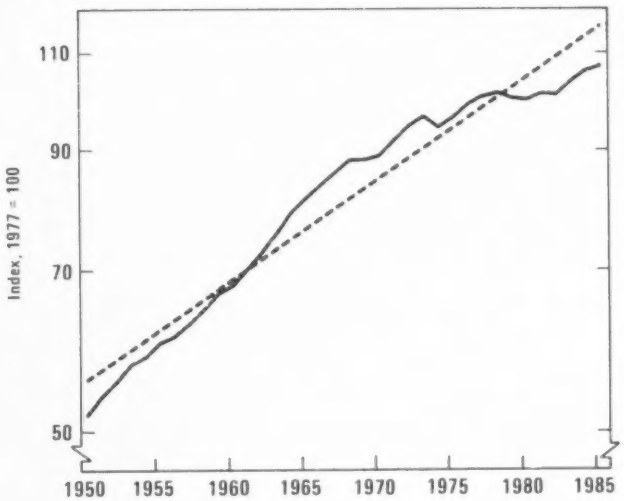
A fourth factor that is critical to productivity is the quality of management and organization. This factor includes the quality of decisions made about what to produce and how to produce it. It also includes how well or how badly labor and management work together.

Finally, several very broad or economywide factors are believed to affect productivity, such as the gains from international trade, and economies of scale that develop with the growth of industries and markets.

Governmental policies can affect growth in productivity, but whether they can have a major positive effect is debatable. Policies designed to improve education and training, tax incentives to spur R&D and investment, and other tax-transfer policies related to work and saving incentives may ultimately help productivity, but their significance is in dispute. Policies that seek to stabilize the economy can help to provide an environment favorable for growth in productivity if they succeed, but some economists oppose them on the ground that the government does not have the knowledge and skill necessary to "fine tune" the economy.

Labor productivity grew especially rapidly in the two decades following World War II, at an average of more than 3 percent per year. Its growth began to slow in the mid-1960s, and in the mid-1970s productivity seemed to remain flat rather than grow. It recovered modestly in the 1980s, but not to the rates of growth that prevailed before 1973 (see Figure III-4).

Figure III-4.
Business Productivity and Its Trend



SOURCES: Congressional Budget Office; Department of Labor, Bureau of Labor Statistics.

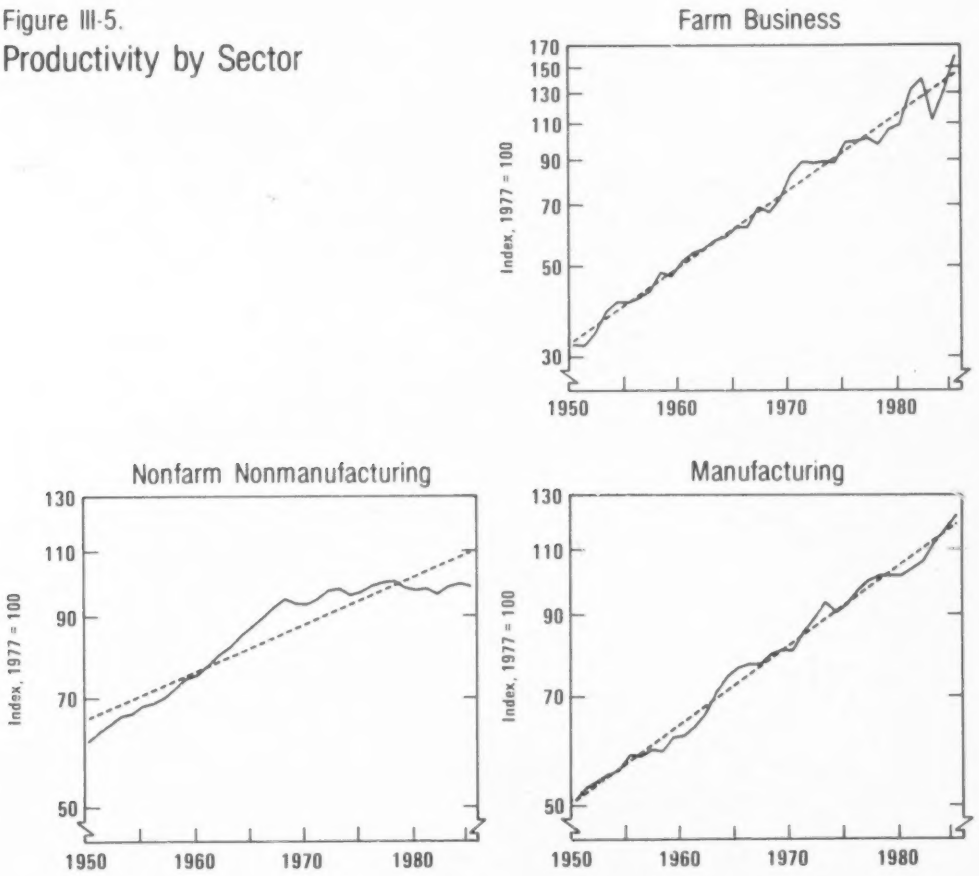
NOTE: Vertical axis is a logarithmic scale.

Different sectors of the economy have varied widely in their productivity performance. During the 1973-1981 period, productivity performance was poor in both manufacturing and nonmanufacturing (Figure III-5). The slowdown now appears to be limited to the nonfarm, nonmanufacturing sector, which has shown almost no measured growth in productivity since the late 1960s. By contrast, the productivity performance of the manufacturing and agricultural sectors appears to be roughly on trend. Indeed, manufacturing growth in productivity from 1981 to 1985 was more rapid than during the 1948-1965 period. 12/

Why did growth in productivity slow in the late 1960s and virtually cease in the 1970s? A vast amount of research on this question seems to yield the following conclusions. First, conventional or growth-accounting

12. Data on recent productivity trends in manufacturing and (nonfarm) nonmanufacturing are subject to wide margins of error.

Figure III-5.
Productivity by Sector



SOURCES: Congressional Budget Office; Department of Labor, Bureau of Labor Statistics.

NOTE: Vertical axes are logarithmic scales.

approaches have been able to explain only about half of the slowdown. 13/ Second, a number of causes, rather than a single cause, seem to have been responsible, although analysts differ widely in their assessment of the relative importance of the different causes. Third, some of the apparent slowdown may be the result of measurement problems.

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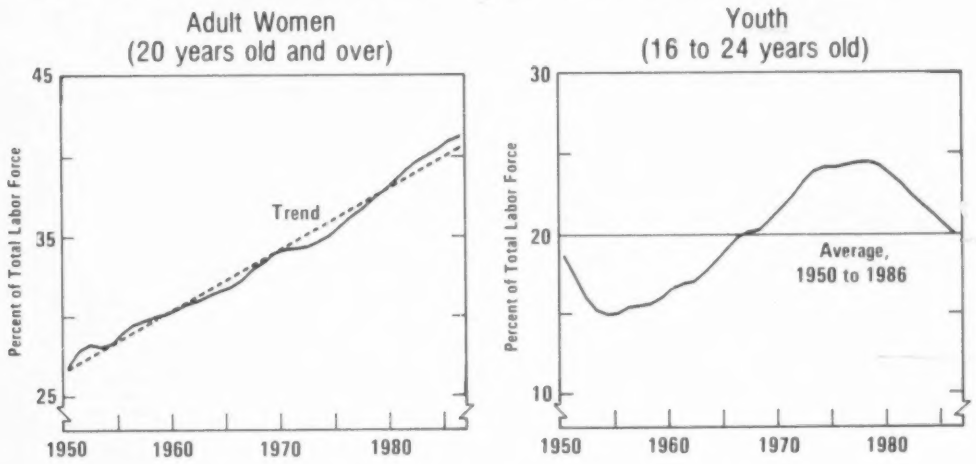
13. The growth-accounting approach, pioneered by Edward F. Denison and John W. Kendrick among others, weighs different factor inputs by the income shares attributable to each input. There have been other approaches to the study of the productivity slowdown, such as econometric approaches. Some of the econometric studies have "explained" nearly all of the slowdown in a statistical sense, but whether actual causation was at work is unclear.

Figure III-6.
Proportions of Adult Women and Youth in the Civilian Labor Force



SOURCES: Congressional Budget Office; Department of Labor, Bureau of Labor Statistics.

The following factors are among those believed to have contributed significantly to the slowdown in productivity and growth:

- The capital/labor ratio grew more slowly, primarily because the labor force grew more rapidly. 14/ In addition, growth in public capital slowed beginning in the mid-1960s.

- Investment in research and development slackened during the period from the late 1960s until about 1975, although much of the slowdown occurred in government-funded R&D rather than in industry-funded R&D. In addition, there may have been a deterioration in the results of given expenditures on R&D. 15/

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14. For the private business economy, the capital-to-labor ratio grew at the following annual rates: 1948-1965, 2.6 percent; 1965-1973, 2.9 percent; 1973-1981, 2.3 percent; and 1981-1985, 1.7 percent. (CBO calculations based on data from the Bureau of Labor Statistics.)

15. See, for instance, Martin N. Baily and Alok K. Chakrabarti," Innovation and Productivity in U.S. Industry," *Brookings Papers on Economic Activity*, vol. 2 (1985), pp. 609-632.

- The proportions of women and young people in the labor force began rising significantly after the mid-1960s (see Figure III-6). New entrants have less experience and, in the case of young workers, less training than mature workers.

- The shift of labor from the farm sector--which had a relatively low level of productivity but a high productivity growth rate--to the nonfarm sector slowed markedly after the mid-1960s, because the transition to a mainly nonfarm economy had been largely completed.

- Government regulations grew in scope and degree, particularly those concerning the environment, occupational health and safety, and employment opportunity. The new regulations created red tape for business and diverted the attention of management from productivity-enhancing areas. In some cases, the regulations required major investments--for instance, scrubbers for electric utilities. However, the impact on productivity of such regulations is perhaps more usefully viewed as a problem in the measurement of output. Measured output does not include, for example, clean air and water or occupational health and safety.

- Energy prices rose extremely rapidly in the mid-1970s and again in the late 1970s. Among other effects, the rise in energy prices may have caused substantial amounts of existing capital to become obsolete.

- The economy experienced prolonged periods of high unemployment and low use of capacity. Some economists believe that such conditions have a relatively long-lasting negative effect on productivity and economic growth. One reason may be that shocks, such as a series of poor harvests, reduce aggregate supply. Other reasons may be the lingering effects of unemployment itself, or wage rigidities. 16/

- The high inflation of the 1970s may have had a damping effect on productivity growth. Some analysts believe that during inflationary periods the efficiency of markets in allocating resources may

16. While the basic idea is not new, there has been renewed interest and new theoretical development along these lines. See, for instance, John Y. Campbell and N. Gregory Mankiw, "Are Output Fluctuations Transitory?" in National Bureau of Economic Research, Working Paper Series, No. 1916 (May 1986); and Oliver J. Blanchard and Lawrence H. Summers, "Hysteresis in Unemployment," National Bureau of Economic Research, Working Paper Series, No. 2035 (October 1986).

be impaired, partly because of the interaction between inflation and the tax system. Inflation also contributes to greater uncertainty among decisionmakers, which may slow investment and innovation.

- The exchange value of the dollar and the foreign trade balance have fluctuated very widely. One result may be the loss of high-productivity jobs in such sectors as machine tools and primary metal manufacturing.

While economists have devoted a great deal of attention to analyzing the causes of the slowdown in productivity, they differ as to the importance of the causes. It is difficult to discuss their work on a comparative basis because researchers have analyzed somewhat different time periods and used different methodologies. In addition, the data underlying the analyses have been frequently revised--sometimes substantially. One recent summary of research on the productivity slowdown, prepared by Edward N. Wolff, is shown in Table III-1. 17/

Capital. The first of the factors mentioned--a slowdown in the growth of the capital/labor ratio--is on almost every researcher's list. As the table shows, some analysts found it to be of major importance while others did not. One eminent scholar in this field, Edward Denison, found that it accounted for only about 4 percent of the slowdown. Most analysts ascribed something like 20 percent to 40 percent of the slowdown to this factor. In addition, some economists make an allowance for changes in the average age of the capital stock on the ground that a decline in the average age implies that the stock embodies more recent "vintages" of capital--that is, newer and more efficient technologies. As shown in the table, these researchers found that the vintage effect adds roughly 10 to 15 percentage points to the role of capital.

Government Regulation. Denison and Kendrick, whose works are cited in the table, attribute something like 15 percent of the slowdown in productivity to increases in government regulation. From the mid-1960s to the late 1970s, more stringent government standards were introduced to deal with air and water pollution, and with occupational health and safety issues. As Denison's later study suggests, the impact of increased government regulations on productivity growth may have partially subsided by the late 1970s. By then, many of the regulations were in place.

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17. Edward N. Wolff, comment on paper by Edward F. Denison, "Accounting for Slower Economic Growth: An Update," in John W. Kendrick, ed., *International Comparisons of Productivity and Causes of the Slowdown* (Cambridge, Mass.: Ballinger, 1984), pp. 47-58.

TABLE III-1. ESTIMATES OF THE IMPORTANCE OF SELECTED FACTORS IN THE PRODUCTIVITY SLOWDOWN

Factor and Researcher	Periods Compared	Percentage of Slowdown Attributed to Factor
Capital Formation		
Capital/Labor Ratio Growth		
Denison (1979)	1948-73/1973-76	4
Kendrick	1948-66/1973-78	21
Clark	1948-65/1965-73	35
Nadiri	1948-74/1974-78	38
Tatom	1950-72/1972-79	39
Norsworthy and Harper	1948-65/1965-73	-
	1965-73/1973-77	49
Norsworthy, Harper, and Kunze	1948-65/1965-73	-
	1965-73/1973-78	71
Denison (1982)	1948-73/1973-81	8
Vintage Effect		
Kendrick	1948-66/1973-78	10
Clark	1948-65/1965-73	14
	1965-73/1973-78	9
Pollution and Regulation		
Denison (1979)	1948-73/1973-76	13
Kendrick	1948-66/1973-78	16
Denison (1982)	1948-73/1973-81	6
Energy Price Effect		
Denison (1979)	1948-72/1972-76	3
Norsworthy, Harper, and Kunze	1965-73/1973-78	16
Hudson and Jorgenson a/	1948-72/1972-76	approx. 20

SOURCE: Edward N. Wolff, comment on paper by Edward F. Denison, "Accounting for Slower Economic Growth: An Update," in John W. Kendrick, ed., *International Comparisons of Productivity and Causes of the Slowdown* (Cambridge, Mass.: Ballinger, 1984), pp. 50-51.

TABLE III-1. (Continued)

Factor and Researcher	Periods Compared	Percentage of Slowdown Attributed to Factor
Labor Quality		
Hours Worked (efficiency-adjusted)		
Denison (1979)	1948-73/1973-76	10
Denison (1982)	1948-73/1973-81	6
Age-Sex Composition		
Denison (1979)	1948-73/1973-76	3
Denison (1982)	1948-73/1973-81	1
Education		
Denison (1979)	1948-73/1973-76	-12
Denison (1982)	1948-73/1973-81	-3
Research and Development		
Denison (1979)	1948-72/1972-76	3
Griliches	1965-73/1973-77	10
Kendrick	1948-66/1973-78	13
Nadiri (whole economy)	1948-74/1974-78	17
Nadiri (private economy)	1948-74/1974-78	37
Output Composition (resource allocation)		
Denison (1979)	1948-73/1973-76	13
Kutcher, Mark, and Norsworthy	1947-66/1966-73	23
Norsworthy, Harper, and Kunze	1948-65/1965-73	-
	1965-73/1973-78	24
Thurow	1948-65/1965-72	-
	1965-72/1972-77	45-50
Wolff	1947-67/1967-76	48
Nordhaus	1948-65/1965-71	77
Denison (1982)	1948-73/1973-81	12

a. Percentage contribution based on Denison's estimate of a 2.97 percentage point decline in overall productivity growth.

Energy. Energy price shocks may have accounted for something like 3 percent to 20 percent of the slowdown, according to estimates cited in Table III-1. These figures perhaps greatly understate the spectrum of opinion on this issue. Some analysts note, for instance, that the productivity slowdown was practically worldwide, and that the timing of the slowdown seemed to coincide with the energy price shock of 1973-1974. Some econometrically derived estimates suggested that much if not all of the slowdown could be attributed to the energy price shock. 18/ Other analysts, such as Denison, argue that energy accounted for a relatively small share of businesses' overall costs, which implied a relatively minor impact on productivity. In general, much of the debate over energy's role centered on the extent to which the oil price shock caused capital to become obsolete. 19/ Conclusive evidence is unavailable on this issue.

Labor Quality. Denison's work cited in the table showed that changes in labor quality had little net effect on productivity because negative factors such as age-sex composition were offset by positive factors such as education. To some extent, this conclusion about age-sex composition depends on the particular dating of the "slowdown." Norsworthy, Harper, and Kunze, for instance, concluded that changes in labor-force composition accounted for something like 15 percent of the slowdown in the private nonfarm business sector in 1965-1973 compared with the earlier postwar period. 20/ In any case, a shift in age-sex composition was a rather significant negative factor in productivity growth throughout much of the postwar period. But because this shift occurred at a fairly steady pace over such a long period, it did not account for much of the productivity slowdown in the 1970s.

A more controversial issue is the role of education and training. The labor force has certainly acquired more years of schooling during the postwar period. But some analysts suggest that the quality of schooling may have deteriorated, or that more years of schooling did not make workers more productive. For instance, average test scores on standardized college

18. See, for instance, John Tatom, "The Productivity Problem," Federal Reserve Bank of St. Louis, *Review* (September 1979), pp. 3-16.

19. See, for example, Martin N. Baily, "Productivity and the Services of Capital and Labor," *Brookings Papers on Economic Activity*, vol. 1 (1981), pp. 1-50.

20. J.R. Norsworthy, M. J. Harper, and K. Kunze, "The Slowdown in Productivity Growth: Analysis of Some Contributing Factors," *Brookings Papers on Economic Activity*, vol. 2 (1979), p. 416.

entrance exams tended to decline from about the mid-1960s to the late 1970s, and some analysts believe that the decline resulted from a deterioration in educational quality. 21/ Others suggest that some workers received more education than they could use productively, in part because young people continue in school for reasons other than to increase their earnings and productivity. 22/

Research and Development. The estimates in Table III-1 suggest that a slowdown in R&D investment had effects on productivity ranging from negligible (Denison) to nearly 40 percent (Nadiri, for the private economy). The primary reason for the large differences may be that measuring the contribution of R&D is so difficult. One issue is whether researchers should attempt to measure it directly (as Kendrick tries to do), or treat it as a statistical residual (as Denison does under the rubric of "contribution to knowledge").

Another issue is the effects on private productivity of government R&D, particularly defense-related R&D. The question is important to the debate on productivity because much of the R&D slowdown in the 1970s was in the category of government-sponsored, particularly defense-related, R&D. Defense R&D probably contributes less, dollar for dollar, to productivity than private, nondefense R&D.

The Composition of Output. The estimates in Table III-1 also attest to large differences in how researchers assess the role of shifts in the composition of output. Most analysts would agree that the movement of workers out of agriculture contributed to growth in productivity, and that as the movement tapered off it contributed to the slowdown in productivity growth. (In the early postwar period, the average level of productivity in farming was comparatively low, although the rate of growth in productivity was comparatively high.) There is disagreement about other sectors, particularly the service-producing sector. While growth in productivity appears to have been slower in the service-producing sector than in the goods-producing sector, and while employment has grown much more rapidly in services than in the goods sector, services have increased their share of output by much less

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21. For a recent analysis of educational achievement, see Congressional Budget Office, *Trends in Educational Achievement* (April 1986).

22. See Richard Freeman, "Overinvestment in College Training?" *Journal of Human Resources*, vol. X, no. 3 (Summer 1975), pp. 287-311. Not all researchers agree. See Russell W. Rumberger, "The Economic Decline of College Graduates: Fact or Fallacy?" *Journal of Human Resources*, vol. XV, no. 1 (Winter 1980), pp. 99-112.

than the shift in employment shares. 23/ Also, while growth in productivity may have been slower for services than for goods-producing industries, the difference in average productivity levels has not been great. In sum, the range of opinion as to the relative importance of shifts in the composition of output remains broad. The estimates in the table find such shifts accounting for from 12 percent to 50 percent of the slowdown. 24/

The Outlook for Productivity

Many of the factors that are believed to have contributed to the slowdown in productivity have reversed in recent years, or at least moderated. The baby boom generation of 15 years ago is now swelling the ranks of the more experienced workers, and the number of teenagers has been falling. Correspondingly, the labor force is growing less rapidly, which should help to push up the capital/labor ratio. Government regulations have in some respects been eased, and at any rate are not being introduced as fast as in the earlier period. Industrial R&D as a percent of GNP has surged to new highs (see Figure III-7). Oil prices began plunging late in 1985. (In the short run, however, any sharp change in energy prices, whether an increase or a decrease, can be detrimental to productivity.) Labor and management have put more emphasis on increasing productivity. The Tax Reform Act of 1986 has reduced marginal tax rates on individuals, which should encourage work, and done much to equalize taxes on different kinds of business capital, which should contribute to greater efficiency for any given size of the capital stock. (On the other hand, the new law has raised taxes on the income from capital, which tends to discourage investment.) These new conditions have caused some analysts to expect a major rebound in the performance of productivity. 25/ Actual productivity performance, however, suggests little

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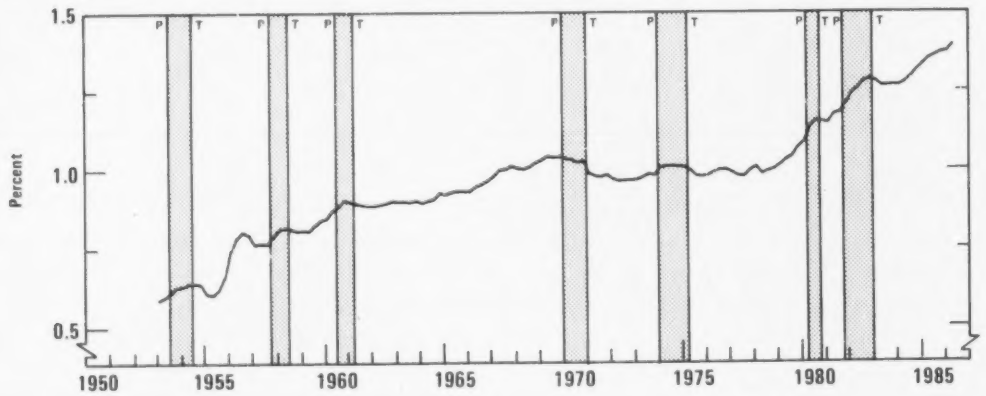
23. Service-producing industries accounted for approximately 50 percent of gross business domestic product in 1950, and 60 percent in 1985. If the weights had remained at the 1950 level, the overall level of productivity would have been only about 1.2 percent higher in 1985.

24. For a more detailed discussion of the issues concerning the role of different factors in the productivity slowdown, see Congressional Budget Office, *The Productivity Problem: Alternatives for Action*(January 1981); and more recently, Martin N. Baily, "What Has Happened to Productivity Growth?" *Science*, vol. 234 (October 24, 1986), pp. 443-451.

25. See John W. Kendrick, "Productivity: The Key to Future Prosperity," in *A Symposium on the 40th Anniversary of the Joint Economic Committee*, Hearings before the Joint Economic Committee, 99:1 (January 16 and 17, 1986).

Figure III-7.
Real Expenditures of Industry on Research and Development as a Percent of Real Gross National Product



SOURCES: Congressional Budget Office; National Science Foundation.

cause for optimism, particularly in the services sector. The lack of much improvement so far may reflect the relatively long lags between the performance of productivity and its determinants.

Not all factors favor more rapid growth in productivity. Business fixed investment grew very rapidly in the first two years of the current expansion but has not grown rapidly in the last two years. The near-term outlook is not very positive either. Among the reasons are low use of capacity, less favorable tax treatment for new investments under the Tax Reform Act, high vacancy rates for office buildings, and problems in the energy sector.

Measurement Issues

To some extent, the slowdown in productivity growth may be more apparent than real. Growth in productivity is very hard to measure accurately; most analysts believe that it is underestimated. More controversial is the view that a significant part of the slowdown in productivity is illusory because of measurement problems.

Productivity is generally not measured directly; instead, information on the market value of output is combined with an estimate of price change

to derive an estimate of output in constant dollars. The estimate of price change is complicated by the need to adjust for quality changes in some products and for the introduction of new products or services. The methods used for making such adjustments are often not very satisfactory, and they are frequently controversial. The problem of measuring output involves difficult conceptual issues. For instance, experts differ widely concerning what kinds of quality adjustments are feasible to make and how they should be made. 26/

The difficulties are greater for services, where output and input are hard to separate. This is the principal reason that the Bureau of Labor Statistics omits the government and private nonprofit sectors from its official measures of productivity. Doing so avoids many difficult measurement problems, such as trying to measure quality change for nonprofit hospital services where technological change has been very rapid, or attempting to measure quality changes in education.

The Department of Commerce, according to a recent study, uses input prices--for example, wage rates--to deflate output measures for more than 20 percent of the service sector. Where this is done, "real" output and "real" input measures move together, and by assumption there is no growth in productivity. The author of the study believes this may be one reason why available measures show essentially no improvement in the nonfarm, nonmanufacturing sector since the early 1970s. He points out that the more detailed industry productivity series maintained by the Bureau of Labor Statistics shows modest, but still significant, productivity gains in the bulk of service industries, including banking, gasoline service stations, and railroad transportation. 27/

An additional problem in measuring output for individual sectors is that it is necessary to measure accurately the inputs from other sectors.

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26. See National Research Council, *Measurement and Interpretation of Productivity*, National Academy of Sciences (1979), pp. 88-121, and, more recently, Jerome Mark, "Measuring Single-factor and Multifactor Productivity," *Monthly Labor Review*, vol. 109, no. 12 (December 1986), pp. 3-11. In addition, the difficulties inherent in measuring aggregate production are very broad. The discussion here is limited to the concepts of the current national income accounts. For instance, no account is taken of the quality of the environment in current measures of GNP. The value of home services is also not included. Neither is the underground economy.

27. John W. Kendrick, "The U.S. Business Economy: Productivity Trends and Prospects," *AEI Economist* (Washington, D.C.: American Enterprise Institute, August 1986).

Thus, to measure manufacturing output, it is necessary to measure purchased inputs from the service-producing and other sectors. If service inputs are increasingly understated because of quality changes, this might explain some of the divergence in the productivity indexes for manufacturing versus service sectors.

If measurement problems are indeed the primary reason for the lack of productivity growth in the nonfarm, nonmanufacturing sector, this would imply a radically different perception of the productivity problem, since productivity growth in manufacturing and agriculture has shown no diminution (although measured productivity change in construction, a goods-producing industry, has been negative for many years). Such a view would probably give undue emphasis to the role of measurement, however. For one thing, manufacturing in recent years has had to face extremely keen international competition, which has no doubt caused management to trim labor and other costs more sharply than usual. The service-producing sector is not generally subject to such intense international competitive pressures. A second reason (related to the first) is the extraordinary growth of employment in the service-producing sector. The capital/labor ratio has been rising much more rapidly in manufacturing than in the nonfarm, nonmanufacturing sector. 28/

Serious measurement problems also exist for the construction industry, where each house or building or road tends to be unique. According to the Bureau of Labor Statistics (BLS) measure, output per hour in the construction industry has declined an average of about 3 percent annually since the mid-1960s, which implies that productivity is only about 55 percent of its former level. Studies of productivity in the construction industry have isolated some of the reasons: a shift in the composition of work toward more residential construction and less large-scale commercial construction; a shift in the composition of highway construction from rural to urban; and the completion of more of the work at the factory, permitting a lower grade of labor at the construction site. Yet, much of the slowdown remains

28. The rates of growth in the capital/labor ratio in the private nonfarm business economy (using data from the Bureau of Labor Statistics) have been as follows:

	Manufacturing	Nonmanufacturing
1948-1965	2.2	1.8
1965-1973	3.4	2.2
1973-1981	4.2	1.5
1981-1985	2.2	1.2

unexplained. 29/ Many experts seriously doubt that productivity has declined as much as the official data suggest, if at all. For one thing, they point to advances in building techniques and to improved building materials. For another, the BLS maintains a more detailed series on the hours required to construct particular standard projects, which shows modest but significant improvements in output per hour.

Many new products and quality changes (for both goods and services) are not fully reflected in the price index used to construct the output part of the productivity equation. As indicated in the construction example, some of the slowdown in productivity has been traced to inadequacies of price indexes. For instance, many medical services and capabilities did not exist 20 or even 10 years ago. New services or products are not at first included in the price indexes used to deflate nominal values of output. As they become more widely used, however, price data are collected and they are included in the price indexes. In general, the result is probably some understatement of gains in productivity, although the magnitude of the bias is unknown.

Problems of measurement are not limited to the nonmanufacturing sector. 30/ The quality of improvements associated with the introduction of more fuel-efficient cars and airplane engines have not been fully reflected in available productivity measures. One recent attempt to take improvement in quality into account led to a significant upward revision in the output index for the computer industry. Until recently, the Commerce Department had assumed that prices were unchanged for that industry. As part of the GNP revisions in late 1985, it introduced declining prices, and these translated into higher output per hour. 31/

While problems of measurement probably impart a downward bias to existing measures of productivity, some analysts argue that measurement does not explain the productivity slowdown. That would require that measurement problems grew worse beginning in the early 1970s, whereas

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29. See Kemble Stokes, "An Examination of the Productivity Decline in the Construction Industry," *Review of Economics and Statistics*, vol. 63 (November 1981), pp. 495-502; and Stephen G. Allen, "Why Construction Industry Productivity Is Declining," *Review of Economics and Statistics*, vol. 67, no. 4 (November 1985), pp. 661-669.

30. For example, see Frank L. Lichtenberg and Zvi Griliches, "Errors of Measurement in Output Deflators," National Bureau of Economic Research, Working Paper Series, No. 2000 (August 1985).

31. Since office equipment is a major category of business fixed investment, this revision also raised substantially the estimated growth of business capital in recent years.

output measures--at least as conventionally defined--have probably been substantially improved. 32/ On the other hand, structural changes may have exacerbated ever-present measurement problems. If measurement problems are more severe in services, the fact that services as a share of output have increased might cause the bias to get worse. In addition, inflation became worse in the 1970s, and imperfect price indexes could have led to larger measurement errors as a result. If so, this source of error should have diminished with lower inflation in the 1980s, but the sectors for which price measures are believed to be of especially poor quality, such as construction, have shown little if any recovery in productivity.

THE ROLE OF INVESTMENT IN THE GROWTH SLOWDOWN

Whatever the errors of measurement, most analysts are convinced that there has been an underlying slowdown in productivity growth. Attention has naturally turned to policies that might reverse the trend. The following discussion focuses on the role of capital investment, and on how governmental policies--especially fiscal policy--may affect investment. This focus does not mean that capital investment is necessarily the most important source of productivity change. Rather, it reflects the impact that federal taxing and spending policies may have on investment and ultimately on economic growth. These policies offer one of the few concrete ways in which the government can contribute to solving the growth problem.

The Importance of Capital Formation

Many studies have been conducted on the role of capital formation in the productivity slowdown. Some of them are listed in Table III-1. As the table makes clear, there is little agreement in their results. A few studies, notably those by Denison, conclude that inadequate physical capital formation has contributed negligibly to the productivity slowdown (that is, it may account for only 4 percent to 8 percent of the decline in productivity), while another study, that of Norsworthy, Harper, and Kunze, comes to the contrary conclusion: that it may have accounted for more than 70 percent of the decline. Other studies summarized in the table suggest that lagging physical investment may have caused roughly one-fifth to one-half of the productivity slowdown. Thus, while most studies agree that changes in investment have played a significant role in causing variations in productiv-

32. See Albert Rees, "Improving Productivity Measurement," *American Economic Review* (May 1980), pp. 340-342.

ity, they disagree on investment's quantitative importance. This disagreement reflects several complex aspects of physical investment:

- Technology. Capital investment may have an important indirect effect on productivity to the extent that technological advances that increase overall productivity must be "built into" the capital stock in order to be effective. There is a great deal of uncertainty over the importance of this issue.

- Obsolescence. Some analysts have argued that measurements of the capital stock--the only existing hard data on capital inputs--do not take account of variations in the degree of obsolescence of different parts of the capital stock during a given period--an issue that is very important to productivity studies. For example, Baily has pointed out that the usefulness of existing energy-intensive capital may have been severely reduced by the energy price increases of the 1970s in a manner not reflected in the measurements of capital stocks. In addition, Baily and several others have suggested that structural changes may have accelerated for a variety of reasons, such as greater competitive pressures from international trade, and that these have been accompanied by corresponding reductions in productive services from the existing capital stock. 33/

- Regulation. Increased pollution abatement and other regulations (particularly over the past 15 years) have forced corporations to undertake investments that did not increase measured output. Such regulations also cause more capital to become obsolete.

Policies to Stimulate Capital Investment

Broadly speaking, two types of policy--fiscal policy and tax policy--are thought to have a permanent effect on fixed capital formation.

- Aggregate fiscal policy may have an important effect on investment in human and physical capital and in research and develop-

33. See Martin N. Baily, "Productivity and the Services of Capital and Labor," *Brookings Papers on Economic Activity*, vol. 1 (1981), pp. 1-50. In addition, important surveys of related issues in the specific context of energy-capital relationships are presented in E.R. Berndt, "Reconciling Alternative Estimates of the Elasticity of Substitution," *Review of Economics and Statistics*, vol. 63, no. 1 (February 1976), pp. 59-68; and J.M. Griffin and D.R. Gregory, "An Intercountry Translog Model of Energy Substitution Responses," *American Economic Review*, vol. 66 (December 1976), pp. 845-857.

ment, insofar as it affects the federal budget deficit. The deficit absorbs savings, and only what is left over can be invested in productive capital. 34/

- Tax policy can raise or lower the overall cost of physical investment through changes in investment tax credits, depreciation allowances, and other provisions. Moreover, measures to equalize the tax treatment of different types of investments can contribute to productivity by improving the allocation of investment funds. This improvement was a major purpose of the Tax Reform Act of 1986.

The Role of Federal Deficits in Economic Growth and Capital Formation

Economists generally agree that smaller federal deficits tend to encourage private capital formation and have a favorable impact on the standard of living in the long run. They are far from unanimous, however, as to the short-run consequences of changes in fiscal policy.

According to the standard Keynesian model of the economy, deficit reductions tend to reduce aggregate spending and production--unless offset by monetary expansion or other factors. Over a very short horizon, deficit reductions may actually reduce investment to the extent that investment is sensitive to the rate of growth in output. This depressing effect on production should be offset over time by a positive effect on the trade deficit. The reason is that a reduction in the budget deficit puts downward pressure on U.S. interest rates and as a result reduces capital inflows. The reduction in net capital inflows lowers the value of the dollar and should eventually reduce the trade deficit. The net result is that the fiscal deficit declines and ownership of capital increases. 35/

Finally, the strict monetarist view, associated with the writings of Milton Friedman and others, maintains that fiscal changes do not significantly affect aggregate output and employment even in the short run. As

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34. Fiscal policy may also at times act as a tool of "demand management," to manipulate the level of output in the economy by directly changing the total demand for goods and services. The level of investment may be affected because it responds to aggregate output. The effects are likely to be temporary, however.

35. The argument that fiscal policy has little effect on the aggregate level of output in an open economy with flexible exchange rates is associated with the theoretical work of Robert Mundell. See Robert A. Mundell, "The Appropriate Use of Monetary and Fiscal Policy for Internal and External Stability," *International Monetary Fund Staff Papers*, vol. 9 (1962), pp. 70-77.

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above, in the long run they do affect the composition of output, particularly the share of GNP devoted to investment.

Most economists agree, then, that in the long run large fiscal deficits depress the accumulation of wealth and thereby reduce living standards. The open-economy perspective suggests that a substantial part of the reduction in capital formation might come about through a reduction in U.S. net foreign investment. Though domestic investment might not suffer, the income from U.S.-owned capital, broadly defined, would be reduced. 36/

Interest Rates. While the ultimate concern about fiscal deficits is their effect on the capital stock and on living standards, much discussion has focused on whether deficits affect interest rates. The reason is that it is extremely difficult to isolate directly the various factors affecting the capital stock. Interest rates could be one important mechanism through which deficits affect capital formation--although not the only mechanism. According to the traditional view, which assumes a closed economy, an increase in the structural deficit reduces the amount of saving and raises real interest rates, thus "crowding out" investment. 37/ More recently, as capital markets have become more highly integrated internationally, more and more analysts are adopting the "open economy" model mentioned above, in which a substantial part of the effect on saving is offset by an inflow of capital from abroad. Because the U.S. economy is relatively large and accounts for a significant proportion of world saving, an increase in deficits could still have an effect on interest rates, but the effect might be smaller and more difficult to detect. Even if the effect of deficits on interest rates is muted by inflows of international capital, the result is not favorable to future U.S. living standards, since the country is accumulating obligations abroad that must be financed from future income. While it may be preferable to finance large deficits through capital inflows rather than financing them internally at higher interest rates, it would be even better if there were no deficit at all.

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36. The real exception to the generally held view about deficits and capital formation is the "neo-Ricardian" view associated with Robert Barro. According to his view, economic agents alter their private saving behavior to offset any lump-sum change in taxes. Many economists question the assumptions underlying the neo-Ricardian conclusions. Even the neo-Ricardians, however, concede that changes in government spending can affect interest rates.

37. Even in this case, a rise in interest rates need not imply that much crowding out of investment will take place. The degree of crowding out would also depend on the elasticity of saving with respect to changes in interest rates. If saving is quite elastic, more funds will become available and the amount of crowding out will be less than otherwise.

The last few years have seen much controversy over the effect of fiscal deficits on interest rates. Empirical work to resolve the issue has proved to be very difficult for a number of reasons. One is that, until the 1980s, U.S. deficits had not varied much, except during wartime. Another reason is that during recessions, fiscal deficits tend to rise and nominal interest rates--particularly short-term rates--tend to fall. These cyclical effects tend to confound or obscure any underlying relationship that may exist between structural deficits and real interest rates--an effect already weakened by the international capital flows described above.

Another reason that researchers have failed to reach a consensus may be that a number of studies have examined the relationship between deficits and interest rates rather than debt and interest rates. Many analysts believe that the stock of government debt relative to GNP, rather than the deficit per se, works most directly to affect the level of interest rates, and through them the level of private investment. In other words, the stock of debt relative to the size of the economy may be more important than the size of the deficit per se. 38/

A number of recent studies have attempted to test for a statistically significant relationship between interest rates and fiscal deficits or government debt. No consensus has been reached. Unfortunately, these studies tend to use different economic models, statistical techniques, and time periods. They also use different measures of deficits or debt. Some studies adjust for the effect of inflation on interest rates and the real value of the debt, while others do not. Some use a cyclically adjusted measure while others do not. 39/

Despite these difficulties and limitations, CBO has summarized and compared the results of approximately 20 empirical studies of deficits and interest rates. Figure III-8 shows the estimated effect on rates from a $50 billion change in the deficit, calculated by using the results of various

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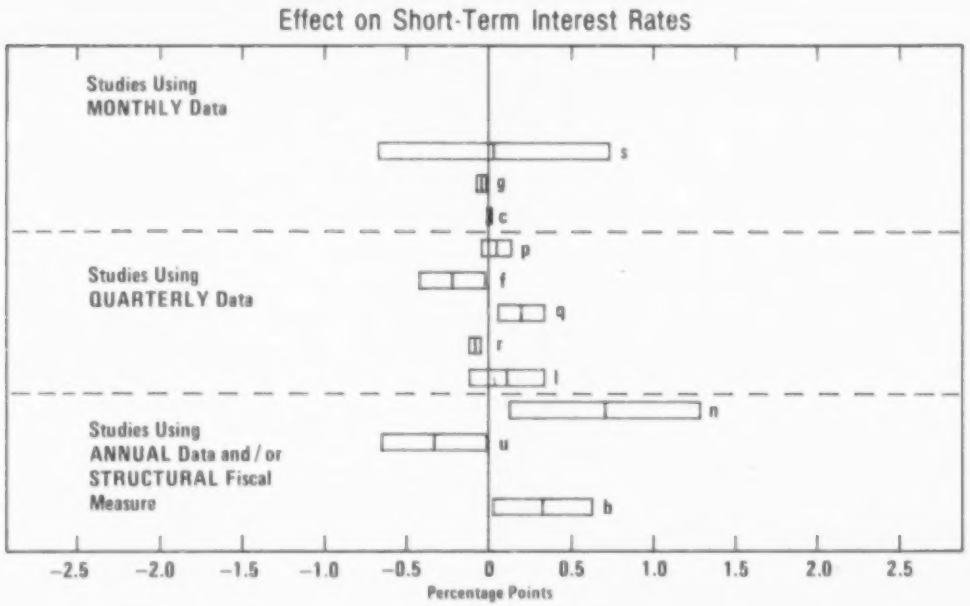
38. This distinction could be especially relevant during times when the deficit and debt move in opposite directions. Under the CBO baseline, the deficit is projected to decline while the ratio of debt to GNP continues rising for a time. In the last few years of the projection, the debt-to-GNP ratio is also falling.

39. A few studies have explored more directly whether there is a link between fiscal deficits and a lower rate of capital formation. See John Makin, "The Effect of Government Deficits on Capital Formation," in Phillip Cagan, ed., *Essays in Contemporary Economic Problems* (Washington, D.C.: American Enterprise Institute, 1985), pp. 163-194; and Frank de Leeuw and Thomas M. Holloway, "The Measurement and Significance of the Cyclically Adjusted Federal Budget and Debt," *Journal of Money, Credit, and Banking*, vol. 17, no. 2 (May 1985), pp. 232-242.

Figure III-8.

Estimates of the Interest Rate Effects of a $50 Billion Increase in the Deficit



NOTE: The bars represent point estimates, plus and minus approximately 95 percent confidence intervals.

SOURCES: Congressional Budget Office and studies listed below.

a. James R. Barth and Michael D. Bradley, "Rational Expectations and the Effects of Federal Debt: Some Empirical Results," George Washington University, processed (1985).

b. James R. Barth, Frank S. Russek, and George Iden, "Government Debt, Government Spending, and Private Sector Behavior: Comment," *Southern Economic Journal* (October 1985).

c. Michael D. Bradley, "Federal Debt Surprises and Real Interest Rates: Whither Crowding Out?" George Washington University, Department of Economics, processed (October 1983).

d. Jack Carlson, Statement before the Joint Economic Committee (October 21, 1983).

e. Frank de Leeuw and Thomas M. Holloway, "The Measurement and Significance of the Cyclically Adjusted Federal Budget and Debt," *Journal of Money, Credit, and Banking*, vol. 17, no. 2 (May 1985), pp. 232-242.

f. William G. Dewald, "Federal Deficits and Real Interest Rates: Theory and Evidence," Federal Reserve Bank of Atlanta, *Economic Review* (January 1983), pp. 20-29.

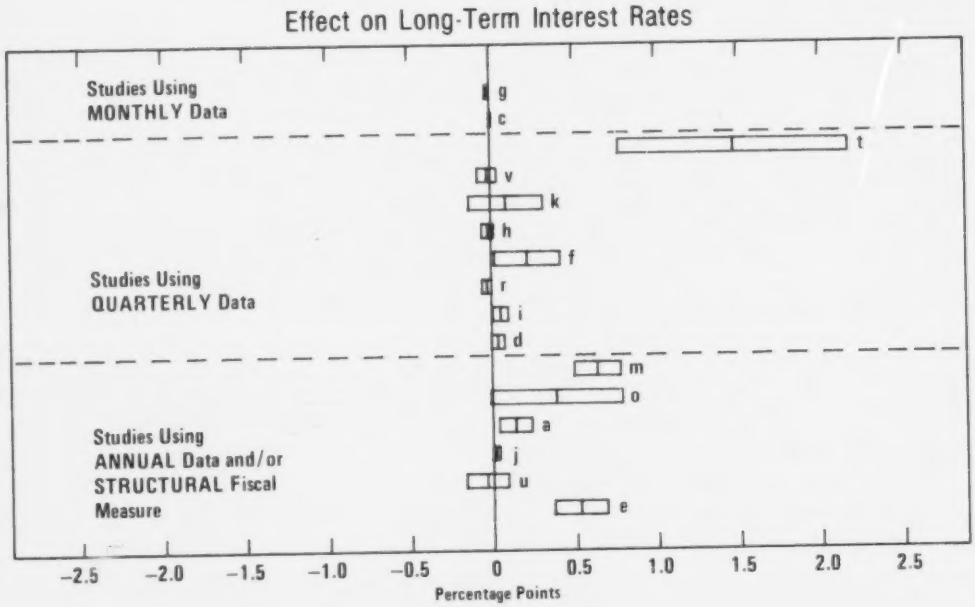
g. Paul Evans, "Do Large Deficits Produce High Interest Rates?" *American Economic Review*, vol. 75, no. 1 (March 1985), pp. 68-87.

h. Martin S. Feldstein and Gary Chamberlain, "Multimarket Expectations and the Rate of Interest," *Journal of Money, Credit, and Banking* (November 1973), pp. 973-902.

i. Martin S. Feldstein and Otto Eckstein, "The Fundamental Determinants of the Interest Rate," *Review of Economics and Statistics*, vol. 52, no. 4 (November 1970), pp. 363-375.

j. Jeffrey A. Frankel, "A Test of Portfolio Crowding-Out and Related Issues of Finance," National Bureau of Economic Research, Working Paper Series, No. 1205 (September 1983).

k. Demetrios S. Giannaro and Bharat R. Kolluri, "The Budget Deficit Debate: A Review of the Recent Empirical Studies," University of Hartford, processed (1985).



l. Gregory P. Hoelscher, "Federal Borrowing and Short Term Interest Rates," *Southern Economic Journal*, vol. 50 (October 1983), pp. 319-333.

m. Gregory P. Hoelscher, "New Evidence on Deficits and Interest Rates," *Journal of Money, Credit, and Banking*, vol. 18, no. 1 (February 1986), pp. 1-17.

n. Michael Hutchinson and David H. Pyle, "The Real Interest Rate/Budget Deficit Link: International Evidence, 1973-1982," Federal Reserve Bank of San Francisco, *Economic Review* (Fall 1984), pp. 26-35.

o. Lawrence Kudlow, Statement before the Senate Budget Committee, statistical appendix (October 20, 1981).

p. John H. Makin, "Real Interest, Money Surprises, Anticipated Inflation and Fiscal Deficits," *Review of Economics and Statistics*, vol. 65, no. 3 (August 1983), pp. 374-384.

q. John H. Makin and Vito Tanzi, "Level and Volatility of U.S. Interest Rates: Roles of Expected Inflation, Real Rates and Taxes," in Vito Tanzi, ed., *Taxation, Inflation, and Interest Rates* (Washington, D.C.: International Monetary Fund, 1984), pp. 110-142.

r. Angelo Mascaro and Allan H. Meltzer, "Long- and Short-Term Interest Rates in a Risky World," *Journal of Monetary Economics* (November 1983), pp. 485-518.

s. Brian Motley, "Real Interest Rates, Money and Government Deficits," *Economic Review*, Federal Reserve Bank of San Francisco (Summer 1983), pp. 31-45.

t. Patrice Muller and Robert Price, "Public Sector Indebtedess and Long-Term Interest Rates," paper presented for the World Bank/Brookings Institution Seminar on the International Consequences of Budgetary Deficits and the Monetary-Fiscal Policy Mix in the OECD (September 1984).

u. John A. Tatom, "A Perspective on the Federal Deficit Problem," Federal Reserve Bank of St. Louis, *Review*, vol. 66 (June/July 1984), pp. 5-17.

v. U.S. Treasury Department, *The Effects of Deficits on Prices of Financial Assets: Theory and Evidence* (Washington, D.C.: U.S. Government Printing Office, March 1984).

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single-equation studies. 40/ Most of the estimates in the table are on the right or positive side of the vertical axis, although common tests of statistical significance do not rule out the possibility that there is no effect. The fact that most of the point estimates are on the right side of the vertical axis, however, means that fairly strong positive effects cannot be ruled out either.

Several considerations have seemed to determine the conclusions of these studies. Studies that used annual data were more apt to find a statistically significant relationship than those that used quarterly or monthly data. Annualizing tends to smooth the data, perhaps making it easier to discern an underlying relationship. In addition, studies that attempted to adjust for the business cycle in measuring the deficit or debt tended to find more of a relationship than studies that did not make such adjustments. Finally, some of the studies reported finding a relationship with long-term but not short-term interest rates.

Given the complexity of the problem, it is not surprising that few empirical studies have uncovered a clear causal link between deficits and interest rates. Most of the studies that have been published to date--both those that find no relationship as well as those that do--have based their conclusions on tenuous evidence. One recent review of several such studies found that the results could be reversed by making minor changes in the specification of the statistical relationships tested or in the measures of budget deficits used. 41/ The bottom line is that, at the current time, few conclusions on this subject are reliable, and the overall inference seems to be that the data are inconclusive.

Saving and Investment Flows. While the link between deficits and interest rates is obscure, that between deficits and the accumulation of aggregate capital or wealth is clearer. Larger budget deficits must leave fewer resources available for domestic private investment unless there is a fully compensating increase in private domestic saving, in the surpluses of state and local governments, in the flow of foreign saving, or in all of these together (see Table III-2 and Figure III-9). How have the large budget deficits of the 1980s been financed? According to the national income accounts,

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40. For the equations that used government debt (rather than the deficit), the calculations are based on the effect of a $50 billion change in the deficit on the level of debt after one year. If a longer period had been assumed, the effect in some cases could be considerably larger.

41. See James Barth, George Iden, and Frank Russek, "Do Federal Deficits Really Matter?" *Contemporary Policy Issues*, vol. 3, no. 1 (Fall 1984-1985), pp. 79-95.

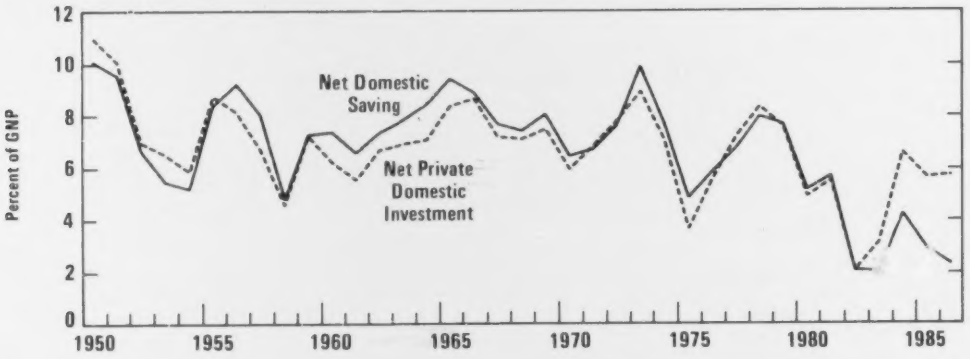
TABLE III-2. NET SAVING, ADDITIONS TO WEALTH, AND INVESTMENT FLOWS AS PERCENT OF GNP (NIPA basis)

Period	(1) Net Private Domestic Saving	(2) State and Local Surplus	(3) Federal Deficit	(4) Net Domestic Saving--Additions to Wealth (1)+(2)-(3)	(5) Net Domestic Saving Shortfalls (6)-(4) = Net Capital Inflow	(6) Net Private Domestic Investment
1950-1959	7.5	-0.2	-0.1	7.4	0.1	7.5
1960-1969	8.1	0.0	0.3	7.8	-0.8	7.1
1970-1979	8.1	0.8	1.7	7.2	-0.2	6.9
1980-1986 a/	6.2	1.3	4.1	3.4	1.4	4.8
1950-1986 a/	7.6	0.4	1.3	6.7	-0.0	6.7
Annual						
1980	6.4	1.0	2.2	5.2	-0.2	4.9
1981	6.6	1.1	2.1	5.6	-0.1	5.5
1982	5.5	1.1	4.6	2.0	0.0	2.0
1983	5.7	1.4	5.2	1.9	1.2	3.1
1984	6.9	1.8	4.5	4.2	2.4	6.6
1985	6.3	1.5	5.0	2.8	2.8	5.6
1986 a/	5.7	1.4	4.9	2.2	3.4	5.7

SOURCES: Congressional Budget Office; Department of Commerce, Bureau of Economic Analysis.

a. Estimate for 1986.

Figure III-9.
Net Saving and Investment



SOURCES: Congressional Budget Office; Department of Commerce, Bureau of Economic Analysis.

net private domestic investment in the 1980s has averaged somewhat less than in the earlier postwar period--by about two to three percentage points of GNP. While some of this reduction was no doubt associated with the 1982 recession, part of it may have been the result of large fiscal deficits. The big adjustment appears to have been in the flow of foreign saving. During the 1950 to 1979 period, U.S. investment abroad averaged approximately 0.3 percent of GNP. This rate was reversed in the 1980s by a net capital inflow averaging approximately 1.5 percent of GNP.

While such accounting data do not constitute a proof, they are at least consistent with the view that higher fiscal deficits may have contributed somewhat to lower domestic investment and perhaps substantially to lower levels of wealth accumulation. 42/ A depressing effect on investment would tend to reduce labor productivity and wage rates. To the extent that capital inflows prevented the effect on domestic investment, wage rates might not

42. The fact that private saving has not increased seems to contradict the neo-Ricardian view that changes in fiscal deficits tend to be offset by changes in private behavior. Proponents of that view, however, point out that the failure of private saving to increase may result in part from the vast increases in wealth associated with rising stock and bond prices. Without this surge in household wealth, perhaps the saving rate would have been significantly higher.

suffer. At the same time, the inflow of foreign capital would imply claims on future income.

Implications of Budget Deficits for Future Standards of Living

Whether or not deficits reduce domestic investment in the short run, most analysts agree that they reduce the accumulation of national wealth. This reduction may come about through slower investment in productivity-enhancing capital, slower accumulation of claims against other economies, or increases in the claims of other economies on the United States.

- If deficits significantly reduce the capital stock, then U.S. production and the incomes that it yields to both workers and owners of capital will be lower. As a result, the U.S. standard of living will eventually fall significantly below what it otherwise would be, though studies suggest that this may take some time--on the order of 20 years or so. 43/

- If deficits induce net inflows of capital from abroad, those may help to maintain the U.S. capital stock and the productivity of U.S. workers. But net U.S. wealth will be reduced, whether because of an increase in foreign claims on U.S. income or because of a reduction in claims by Americans on income produced abroad. In this case, also, the standard of living of U.S. residents will fall significantly below what it otherwise would be, though it may take even longer--on the order, perhaps, of 40 years--for the decrease to be felt.

Evidence that is consistent with the latter case comes from a comparison of the recent growth rates of gross national product (which measures the output of American-owned labor and capital) and gross domestic product (which measures U.S. output regardless of the nationality of the owner of the resources involved). Over the last three years, the growth rate of GDP has been higher than that of GNP by roughly two-tenths of a percentage point on average. The difference reflects the increasing share of income generated in the United States that is lost to Americans because of the deterioration in their net foreign asset position.

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43. A fall may be occurring now. The deterioration in the U.S. net foreign asset position during the past several years reflects the fact that U.S. residents have not been investing abroad as much as they did in the past.

The fact that changes in living standards take so long to be felt has led many to call the issue one of justice between generations. That is, the high deficits may allow people living today to enjoy higher consumption at the expense of those who will be living tomorrow.

IMPLICATIONS FOR THE FIVE-YEAR BUDGET PROJECTIONS

CBO's baseline estimates of the budget deficit through 1992 are based on highly uncertain projections of output, inflation, unemployment, and other key economic variables. If economic growth turns out to be weaker than what is now projected, the result will be higher budget deficits than projected. Achieving the targets of the Balanced Budget Act could then be more difficult.

The Outlook for Potential and Actual Growth

CBO projects that potential output as measured by gross domestic product (GDP) will grow at an average annual rate of 2.6 percent from 1986 through 1992. This rate implies a growth in potential GNP of about 2.5 percent. During the last two years of the projection period, actual and potential output are assumed to coincide. The path to potential output consists of two parts. Through 1988, real GDP grows by 3.1 percent, and real GNP by 3.0 percent. This forecast is consistent with the fiscal policy assumption that the Balanced Budget Act targets will be achieved. In 1988 through 1990, GDP is projected to grow at its average postwar rate of 3.2 percent, and GNP at 3.1 percent, thus gradually reducing the gap between actual and potential output.

The major assumptions underlying the projected growth of potential GNP through 1992 are that (at constant 6 percent unemployment) labor productivity (GNP per worker) rises at a rate of 1.3 percent, while the work force expands by 1.2 percent per year. As actual GNP moves toward potential GNP, the actual growth in productivity and in the work force are assumed to exceed their corresponding growth at potential, reflecting a projected decline in the unemployment rate to 6 percent. The assumptions used by CBO for projecting the growth rate of potential output, and the path actual output would take to reach potential, are subject to considerable uncertainty. Other combinations of assumptions are also quite plausible. Some would bring the economy more quickly to its potential path. Others would maintain a gap between actual and potential output throughout the projection period.

TABLE III-3. A COMPARISON OF AVERAGE GROWTH RATE PROJECTIONS FOR REAL GNP, EMPLOYMENT, AND PRODUCTIVITY (Average growth, 1986 to 1992)

	Real GNP	Civilian Employment	Real GNP/ Employment
CBO	2.8	1.5	1.3
Chase	2.7	1.6	1.1
DRI	2.8	1.6	1.2
Townsend-Greenspan	2.7	1.4	1.2
WEFA	2.8	1.5	1.3

SOURCES: Congressional Budget Office; Chase Econometrics; Data Resources, Inc.; Townsend-Greenspan & Co., Inc.; Wharton Econometric Forecasting Associates.

A rough range of uncertainty for the GNP projection through 1992 can be obtained by comparing this projection to the average annual growth rate projections made by other forecasters. Table III-3 presents four such projections of GNP growth, in addition to the CBO projection. It also shows the annual average growth rate projected for employment and productivity (GNP per worker) from 1986 to 1992. The average of the four projections is 2.7 percent for GNP, 1.5 percent for employment, and 1.2 percent for productivity--approximately the same rates projected by CBO.

Budget Consequences of Slower Economic Growth

The CBO five-year budget projections assume that real GNP grows at an average annual rate of 2.8 percent from 1986 to 1992. This assumption does not appear overly optimistic or pessimistic in light of other forecasts. Since slower growth is possible, however, it is important to evaluate the consequences it would have for the CBO five-year budget projections.

TABLE III-4. BUDGET EFFECTS OF ONE-HALF PERCENTAGE POINT LESS IN REAL GNP GROWTH THAN PROJECTED (By fiscal years, in billions of dollars)

	1987	1988	1989	1990	1991	1992
Revenues	-2	-7	-14	-21	-31	-41
Outlays	a/	1	3	5	8	11
Deficit	3	8	16	26	38	52

SOURCE: Congressional Budget Office.

a. Less than $500 million.

How much would the five-year deficit projections be altered by assuming one-half percentage point less growth, but the same path for inflation? Rule-of-thumb calculations suggest that the result would be to add roughly $52 billion to the deficit by 1992 (see Table III-4). 44/ Less growth would lower revenues primarily by reducing total taxable incomes, although it would also entail differences in the mix of income shares and tax bases. The increase in outlays would result mainly from increased payments for income maintenance programs and higher debt service costs. 45/

44. The above calculations assume that growth in real output will be a constant one-half percentage point less beginning in 1987 and that there will be an accompanying 0.2 percent increase in the unemployment rate each year. If slower growth was the result of less growth in productivity, then the effect on the deficit would be somewhat less, because the unemployment rate, and thus transfer payments, would not be increased.

45. See Chapter II for a detailed discussion of the sensitivity of the budget to economic conditions.

APPENDIXES

APPENDIX A

CBO BASELINE CONCEPTS AND ASSUMPTIONS

The CBO budget baseline shows the pattern federal government revenues and spending would take during the next five years if current policies were continued without change. The Congressional Budget Office makes these projections so that the Congress can assess future budget conditions and measure the budgetary effects of proposed revenue or spending legislation.

This appendix describes the assumptions used in preparing the baseline revenue, spending, and credit projections for this report. The first section describes the revenue baseline. The next two sections explain the baseline projections of budget authority and outlays. The final section discusses the credit projections.

BASELINE REVENUES

Baseline revenues are, with two exceptions, revenues generated under existing tax law. In these cases, excise taxes dedicated to trust funds are assumed to be continued beyond their scheduled expiration:

- Airport and Airway Trust Fund taxes are assumed to be extended at current rates beyond December 31, 1987.
- Highway Trust Fund taxes are assumed to be continued at current rates beyond September 30, 1988.

All other tax provisions scheduled to expire between 1987 and 1992 are assumed to do so as specified in law. Among the expiring provisions are the excise tax on telephone services, which is scheduled to expire after December 31, 1987, and the newly enacted customs user fees on certain merchandise imports, which are scheduled to expire after September 30, 1989.

OVERVIEW OF BASELINE SPENDING CONCEPTS

Federal spending can be divided into two categories. A large part of federal spending is mandated by existing law and is referred to as direct

spending. The remainder is subject to annual review through the appropriation process. This section of the appendix describes the basic methodology for projecting these two types of federal spending, and the next section discusses programs that require special assumptions or methodology.

Direct Spending

The term direct spending refers to four types of spending that are, in effect, mandatory under existing law: permanent appropriations and trust funds; appropriated entitlements; permanent revolving funds; and offsetting receipts. To affect spending in these programs, the basic substantive law usually must be changed. The baseline spending projections for these programs assume that existing law will continue unchanged; they represent CBO's best estimates of future spending under the baseline economic assumptions.

Permanent Appropriations and Trust Funds. In some instances, authority to spend may be provided directly in the legislation that authorizes a program, without the need for subsequent annual appropriations. Examples of such direct spending programs include Medicare, Social Security, and interest on the public debt.

Appropriated Entitlements and Other Mandatory Appropriations. Some benefit programs, called appropriated entitlements, have their budget authority provided in annual appropriations. Medicaid, Supplemental Security Income, Aid to Families with Dependent Children, and the veterans' compensation and pension programs are examples of such appropriated entitlements. The basic legislation for these programs requires the payment of benefits to any person or government meeting the eligibility requirements. The level of spending is mandated in these cases by existing law and cannot be effectively controlled through the appropriation process.

In addition, certain appropriated accounts are treated as mandatory for projections purposes, even though the House and the Senate Budget Committees do not both consider them entitlements. The list of mandatory items is that used in the so-called bipartisan baseline, which served as the basis for developing the 1983 budget resolution. The projections for the Food Stamp program, for example, are computed as if the program were mandatory, since the Congress has always appropriated enough money to cover all benefit payments to eligible recipients. Other programs treated as mandatory include child nutrition, unemployment trust fund outlays for training and employment services and for administrative expenses, payments

to air carriers, Maritime Administration operating differential subsidies, rehabilitation services, government payments for annuitants' health benefits, payments in lieu of taxes, and certain miscellaneous trust funds. Some federal payments to Civil Service Retirement and other trust funds, while considered mandatory, are exactly offset by corresponding intragovernmental receipts and have no effect on total outlays.

Revolving Loan Funds. Many federal lending programs are administered through revolving funds, which disburse loans and accept repayments of principal and interest. The CBO calculates a baseline for these programs by first developing a lending level for each year of the projections. For fiscal years in which the Congress has set a lending limit, CBO uses that limit as a base for projections. If no limit has been set, CBO estimates the base-year lending level to be equal to average program experience over the past few years, adjusted for inflation. For subsequent years in which the Congress has yet to set a ceiling, CBO projects a baseline lending level by inflating the base-year level. New budget authority and outlays are estimated using these lending levels, projected loan repayments, and established government accounting practices for revolving funds.

In its budget for fiscal year 1988, the Administration announced its intention to use its authority to sell the loan assets of certain government agencies, such as the Small Business Administration and the Farmers Home Administration. These plans were formulated after the preparation of the CBO baseline, and their budgetary effects are not included in the projections.

Offsetting Receipts. Certain receipts from the public resulting from the federal government's business-type activities and certain intragovernmental receipts are automatically credited to special receipt accounts and are treated as negative spending. They are deducted from other budget authority and outlays in computing budget totals rather than being counted as revenues. Examples of such receipts include those from premiums for Supplementary Medical Insurance, from the sale of timber in national forests, and from rents and royalties from Outer Continental Shelf lands. In the baseline projections, the amount of these receipts is estimated on the assumption that current government policies regarding the extent of timber sales, the scope and timing of offshore leasing activities, and so forth, will be continued, and that actual receipts will respond to underlying economic and demographic conditions, such as the prices of lumber and oil and the number of Medicare enrollees.

Annual Appropriations

The remainder of federal spending is controlled by and requires annual action through the appropriation process. The fiscal year 1987 spending level assumed for these programs is that enacted by the Congress through October 1986. The 1988-1992 projections for the appropriated accounts represent a continuation of the program levels embodied in the 1987 appropriation, which is taken as the most current indication of Congressional policy.

For most appropriated accounts, future budget authority is assumed to stay constant in real terms--that is, to keep pace with a measure of inflation appropriate to the particular budget account. In a few instances, the baseline budget authority is the estimated amount required to achieve specified program objectives--for example, a fill rate for the Strategic Petroleum Reserve. When the 1987 appropriation reflects the availability of unobligated balances, the projection base is assumed to be the 1987 program level--that is, budget authority plus activity financed by available balances. Appropriations for 1988 through 1992 are projected by inflating this base-year program level.

Although statutory authority for most discretionary programs will expire during the five-year projection period, authorizations are assumed to be renewed routinely except for programs that are clearly of a one-time nature, such as temporary study commissions. The projected growth in budget authority is limited by any authorization limit that may have been set by the Congress; if the limit ceases to apply in some future year, budget authority is assumed to rise with inflation thereafter. If the base-year appropriation exceeds the authorization, the projections also ignore the authorization limit, which is considered to have been rendered moot by the subsequent appropriation. It is further assumed that budget authority will result in outlays according to the observed historical pattern for the particular account.

SPECIAL ASSUMPTIONS FOR SPENDING

Most spending is projected using the baseline concepts and approaches described in the previous section of this appendix. This section provides further information for those budget accounts requiring special assumptions or methodology.

National Defense (Function 050)

The defense baseline assumes that budget authority keeps pace with inflation--the same approach used generally for nondefense discretionary programs. Outlays in each year are CBO estimates of spending resulting from the assumed budget authority.

In the 1987 appropriations bill, the Congress rescinded about $5.4 billion in budget authority previously provided for 1986 and prior years. Under Congressional scorekeeping conventions, these rescissions are counted as reducing 1987 budget authority even though the appropriation rescinded prior-year money. The projections of budget authority for 1988 through 1992 take as a base the amount of new 1987 budget authority without reduction for the rescission of earlier appropriations.

The two major components of the defense budget are federal employee pay and benefits (about one-third of 1987 budget authority) and purchases of goods and services (the remaining two-thirds). The inflation factor for federal employee pay and benefits reflects both the assumed rate of pay increase and the increased agency costs resulting from the new Federal Employee Retirement System. The CBO assumes that federal employees' wages--civilian and military--are increased at the same rate as those in the private economy. The inflation factors for the other components of the defense budget are derived by projecting price changes in specific defense industries consistent with the baseline economic assumptions.

Baseline inflation rates for these two major components of defense spending and a composite rate for defense spending as a whole are shown in Table A-1. Because there is often a long lag between the obligation of defense funds and the actual production of the defense goods, the inflation rate for outlays and budget authority are different, although related. The outlay inflation rate reflects only price changes in the given year. For those procurement accounts whose budget authority will result in outlays over many years, the inflation rate for budget authority is a weighted average of projected outlay inflation rates over the period during which the budget authority will be spent.

International Affairs (Function 150)

Public Law 480 Food Assistance Program. Through the Agricultural Trade Development and Assistance Act of 1954 (Public Law 83-480), the government provides selected developing nations with grants and with low interest rate, long-term loans to purchase U.S. farm products. The CBO bases its

spending projections for this program on the obligation levels specified in the fiscal year 1987 continuing resolution; budget authority is the level of new appropriations required to carry out these obligations in each year, and outlays are disbursements less receipts from program participants.

Foreign Military Sales Credit. The Administration has announced a program of partial capitalization of interest and prepayment without penalty for foreign military sales credits extended through the Federal Financing Bank. This program was announced after the preparation of the CBO baseline, and its effects are not included in the projections.

Guarantee Reserve Fund. Payments from this fund reimburse lenders for late charges and other costs of providing guaranteed loans for foreign military sales credits. At the start of fiscal year 1987, the Guarantee Reserve Fund contained $16 million as a reserve for $21 billion in loan guarantees. The baseline estimates that the fund will be exhausted in fiscal year 1987 and assumes that direct credit appropriations for foreign military sales will be used to meet claims payments.

TABLE A-1. DEFENSE INFLATION RATES UNDER CBO BASELINE ASSUMPTIONS (By fiscal year, in percents)

Component	1987	1988	1989	1990	1991	1992
Budget Authority Inflation Rate						
Pay and benefits	2.7	5.0	5.4	5.1	5.4	5.3
Purchases	3.3	4.0	4.1	4.2	4.2	4.2
Composite	3.1	4.3	4.5	4.5	4.6	4.6
Outlay Inflation Rate						
Pay and benefits	2.7	5.0	5.4	5.1	5.4	5.3
Purchases	2.5	3.5	4.1	4.2	4.2	4.2
Composite	2.6	4.2	4.5	4.5	4.6	4.6

Source: Congressional Budget Office.

Export-Import Bank. The Export-Import Bank (Eximbank) provides direct loans and loan guarantees to foreign buyers of selected U.S. products. As part of its $900 million direct loan limitation, the Eximbank received an appropriation of $100 million for the grant element of tied-aid--that is, deeply subsidized--credits. In the CBO baseline, the Eximbank's direct loan obligations and tied-aid grants are projected at levels which together equal the direct loan limits specified in the continuing resolution.

The Eximbank also has permanent borrowing authority to meet obligations resulting from regular bank lending activity. The budget authority for this activity is the level of direct loan obligations in each year, less direct loan cancellations, repayments, and Eximbank net income, plus redemption of debt and changes in the balance of unobligated borrowing authority available to the bank. Outlays represent disbursements less receipts from borrowers.

International Monetary Fund (IMF). Since the IMF's founding in 1944, the United States has participated in every increase in the fund's resources and is projected to continue to do so. The CBO baseline assumes that an increase in the quota will occur in 1989 in an amount sufficient to maintain the relative level of the current U.S. subscription. Dollar transfers with the IMF affect the U.S. Treasury's cash position and borrowing requirements, but are counted as an exchange of international reserve assets and not as budget outlays.

State Department Security. The 1987 base for projecting State Department salaries and expenses includes funds for ongoing activities to enhance security that were provided in the fiscal year 1986 supplemental appropriation (Public Law 99-349) for use during fiscal year 1987. Amounts appropriated in fiscal year 1986 for nonrecurring items are not included in the projections base.

Special Defense Acquisition Fund. Outlays from this fund over the projections period are based on the limits on new obligations contained in the appropriations acts.

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General Science, Space, and Technology (Function 250)

Shuttle Orbiter. The continuing resolution for fiscal year 1987 appropriated $2.1 billion for a replacement space shuttle orbiter. This was intended as a one-time appropriation and is not included in budget authority projections beyond 1987. Outlays for the new orbiter are constrained by the continuing resolution's prohibition on the obligation of funds before August 1, 1987.

Space Station. The baseline assumes that space station funding is maintained at the fiscal year 1987 level adjusted for inflation. The Congress has not yet approved or provided funding for a particular space station design, however, and the portion of baseline budget authority earmarked for initial station development cannot be spent.

Energy (Function 270)

Tennessee Valley Authority and Bonneville Power Administration. Budget authority for these permanent appropriations is the level of borrowing authority needed each year to finance capital spending, while outlays represent capital spending levels, net of receipts. The baseline assumes that all operating expenses are covered by revenues from ratepayers.

Uranium Enrichment. The federal government sells enriched uranium to private and government customers and uses the receipts to defray its production costs. Budget authority projections in the baseline assume that the Congress will continue to appropriate amounts equal to each year's estimated receipts. Receipts from civilian customers are projected on the basis of current prices and anticipated sales, and intragovernmental receipts from the defense atomic energy program are projected on the basis of fiscal year 1987 appropriations, with adjustment for inflation in future years.

Sale of Minerals and Mineral Products. Receipts from the sale of oil and other petroleum products from the Naval Petroleum Reserves are deposited in the U.S. Treasury. Estimates of these receipts are based on projections of oil prices, production rates, and sales of other petroleum products.

Nuclear Waste Disposal Program. This program reflects spending by the Department of Energy to develop repositories for the disposal of high-level radioactive waste. Budget authority projections include amounts that the department estimates will be needed each year to develop repositories in compliance with the procedural and scheduling requirements in the Nuclear Waste Policy Act of 1982 (Public Law 97-425). Funding for general support activities is projected to continue at the 1987 level, adjusted each year for inflation.

Nuclear Waste Fee. The Nuclear Waste Policy Act of 1982 levies a fee of one-tenth of a cent per kilowatt hour on net electricity generated by nuclear power plants. In the baseline, the receipts from this fee are determined by estimates of the output of completed power plants, plus plants scheduled to begin operation in each year; the fee is assumed to remain constant through 1992.

Clean Coal Technology Reserve. The Congress authorized $400 million for this program in the continuing resolution for fiscal year 1986. Funds were to be transferred from the Energy Security Reserve as follows: $100 million in 1986 and $150 million in 1987 and 1988. The CBO baseline assumes that the Congress will continue to fund the Clean Coal program at the 1988 level, adjusted for inflation. The Department of Energy intends to award initial contracts for technology demonstration projects during fiscal year 1987. Following the award of these contracts, the baseline assumes that the relation between outlays and budget authority will be similar to that for comparable federal research programs.

Energy Conservation. The Omnibus Budget Reconciliation Act of 1986 (Public Law 99-509) directs the Secretary of Energy to apply as much as $200 million from settlements in oil overcharge cases to state conservation grants. For fiscal year 1987, the Congress has supplemented the funds from oil overcharges by appropriating the difference between $200 million and the amount of overcharge funds determined by the Secretary of Energy. The baseline assumes that the Congress will maintain an inflation-adjusted program level of $200 million for conservation grants through 1992.

Strategic Petroleum Reserve. The Congress appropriates funds both for operation and construction of the reserve and for oil acquisition. The CBO baseline for operation and construction assumes that the planned capacity level of 750 million barrels is completed and maintained. The baseline for oil acquisition assumes that the reserve will be filled at a rate of 75,000 barrels per day, which is the minimun fill rate set by the Omnibus Budget Reconciliation Act of 1986. At this rate, the reserve will contain roughly 670 million barrels by the end of 1992.

Natural Resources and Environment (Function 300)

Fire-Fighting. The cost of fighting forest and range fires on federal lands is borne by the Bureau of Land Management, the Bureau of Indian Affairs, the U.S. Forest Service, the Fish and Wildlife Service, and the National Park Service. These agencies normally meet their fire-fighting costs by borrowing from other budget accounts, then repaying the borrowed amount

through a supplemental appropriation in the following fiscal year. For 1987, however, funds to reimburse actual 1986 fire-fighting costs were included in the continuing resolution. After 1987, the projections are based on average fire-fighting costs over the past five years, adjusted for inflation.

Wastewater Treatment Construction Grants. In the continuing resolution for fiscal year 1987, the Congress provided $2.4 billion for the Environmental Protection Agency's construction grants program for wastewater treatment. Of that amount, $1.8 billion represents current-year appropriations, and $600 million is derived from funds appropriated in 1986 but not released for obligation. Of the $1.8 billion in new appropriations, only $600 million is immediately available for obligation, with the balance requiring release in a subsequent appropriation act. The CBO baseline assumes a base-year program level of $2.4 billion, with adjustment for inflation in future years. Outlay estimates assume that the $1.2 billion in 1987 appropriations not immediately available for obligation will be obligated in fiscal year 1988.

Agriculture (Function 350)

Commodity Credit Corporation Fund. The Commodity Credit Corporation (CCC) administers programs that support farm prices and incomes. In projecting spending for this activity, CBO assumes:

- The continuation of policies set forth in the Food Security Act of 1985 (Public Law 99-198) and subsequent amendments, and announced or expected Administration actions implementing the legislation;
- The announced 1987 target prices, loan rates, and acreage reduction programs for wheat, feed grains, cotton, and rice;
- The continuation through 1992 of advance deficiency payments under the same terms as required for the 1987 crops--40 percent of estimated total deficiency payments for wheat and feed grains, 30 percent for cotton and rice; and
- The continuation through 1992 of the feed grain paid diversion program.

Commerce and Housing Credit (Function 370)

Periodic Census and Programs. The cyclical nature of these activities, which are conducted by the Bureau of the Census, generates an irregular

baseline pattern. The CBO baseline excludes one-time items (generally major capital expenditures), includes future censuses required by law, and adjusts for inflation.

Patent and Trademark Office. Budget authority for the Patent and Trademark Office represents the difference between operating expenses and receipts. The CBO estimate of receipts is based on projected collections from trademark, service, and patent processing fees. The operating expenses are projected from the 1987 base and they assume a constant level of activity.

Federal Deposit Insurance Corporation (FDIC). Baseline projections of outlays for the FDIC consist of expenses for operations and for acquiring failed banks. These expenses are offset by assessments on insured bank deposits and by income from fees, liquidations, and investments. In addition, the FDIC issues notes, in lieu of cash, to banks that acquire failed financial institutions. The budget records the issuance of these debt securities as federal outlays.

Transportation (Function 400)

Federal-Aid Highways. The Surface Transportation Assistance Act of 1982 (Public Law 97-424) provides $4 billion in contract authority each year through 1989 for Interstate highway construction and $100 million in each year of the projections period for the emergency relief program. Spending for 1987 has been curtailed by a delay in reauthorizing the Highway Trust Fund programs. The CBO baseline assumes that the 100th Congress will reauthorize the highway programs for the current and future fiscal years at the 1986 level, adjusted for inflation. The 1987 continuing resolution established a ceiling for obligations of $13 billion in 1987; the baseline adjusts this ceiling for inflation in later years.

Washington Metropolitan Area Transit Authority (WMATA) Interest Payments. The federal goverment's share of interest payments due on WMATA's outstanding debt issue is projected to remain constant at $51.7 million through fiscal year 1992, as provided by Public Law 96-184.

Interstate Transfer Grants. In previous years, state and local governments could, with federal approval, withdraw from the Interstate highway system segments that they considered nonessential. The funds that would have been spent on the withdrawn segments could then be used for local transit projects. About $1 billion of approved substitute transit projects was out-

standing at the start of fiscal year 1987. The projections assume appropriations through 1991 to cover these projects.

Washington Metro. Public Law 96-184 authorized $1.7 billion in federal funds for construction of the Washington metrorail system. A total of $1.158 billion has been appropriated to date, and the baseline assumes the 1987 appropriation will be continued in later years with adjustment for inflation. The final payments will be made in 1991.

Mass Transportation Discretionary Grants. The Surface Transportation Assistance Act of 1982 set aside one cent of the gasoline and diesel fuel excise tax for mass transportation and provided contract authority for discretionary grants through 1986. The baseline assumes that the Congress will reauthorize spending for Highway Trust Fund programs for the current fiscal year and future years at the 1986 level, adjusted for inflation. The 1986 obligation ceiling ($1.003 billion) is also inflated in future years.

Highway Safety Grants. The Surface Transportation Assistance Act of 1982 authorized the use of Highway Trust Fund monies for highway-related safety grants and state and community highway safety grants through fiscal year 1986. The baseline assumes that Congress will reauthorize spending for these programs for the current fiscal year and future years at the 1986 level, adjusted for inflation.

Conrail Sale. The Omnibus Budget Reconciliation Act of 1986 directed the Secretary of Transportation to sell the government's interest in the common stock of Conrail. The baseline assumes that the government will receive about $1.9 billion in fiscal year 1987 as a result of this sale. The payments which Conrail would have made to the federal government in later years are assumed to be canceled by the sale.

Grants-in-Aid for Airports. Budget authority for fiscal year 1987 was established for this program by the Airport and Airway Improvement Act of 1982 (Public Law 97-248) and the Surface Transportation Assistance Act of 1982. In fiscal years 1988 through 1992, the 1987 budget authority is adjusted for inflation. The CBO bases its outlay estimates on obligation ceilings specified in appropriation acts; the 1987 obligation ceiling of $1 billion is adjusted for inflation in future years.

Metropolitan Washington Airports. The Metropolitan Washington Airports Act of 1986 (Public Law 99-591) authorized the Department of Transportation to lease Washington National Airport and Washington Dulles International Airport to a regional authority; the baseline assumes that this transfer will occur near the end of fiscal year 1987. Federal receipts from

concession arrangements and other activities at the two airports are assumed to cease when the airports are transferred. After 1987, the federal government will receive annual lease payments of $3 million (in fiscal year 1987 dollars) and a one-time payment in fiscal year 1988 for the retirement system.

Community and Regional Development (Function 450)

Disaster Assistance. Three major programs in this function help mitigate the effects of disasters on individuals, businesses, and local governments. Through these programs, the federal government provides flood insurance, loans to help restore damaged property, and grants to assist victims. Because of the unpredictable demand for these programs, baseline projections are based on weighted historical averages, adjusted for inflation and changes in regulations.

Education, Training, Employment, and Social Services (Function 500)

Guaranteed Student Loans. The projection of the Guaranteed Student Loans program assumes extension of the authority for the Internal Revenue Service to recoup loan defaults from tax refunds.

Pell Grants. The Congress appropriated $100 million in fiscal year 1987 to reduce program funding insufficiencies from prior years. The CBO baseline assumes the same amount is appropriated each year of the projections.

Corporation for Public Broadcasting. The Congress appropriates budget authority for this program two years in advance; the continuing resolution for fiscal year 1987, for example, provided funding for 1989. The baseline levels for later years reflect the 1989 level, adjusted for inflation.

Work Incentive (WIN). In anticipation of legislation that will replace the WIN program with a new training program, the 1987 appropriation for WIN provided funding for only nine months. The CBO baseline assumes that such a replacement program will be authorized, and projects spending for 1988 and later years based on the annualized 1987 program level, adjusted for inflation.

Interim Assistance to States for Legalization. Grants to states for legalization of aliens is a new and temporary program provided for in the Immigration Reform and Control Act of 1986 (Public Law 99-603). The bill provides appropriations of $1 billion in fiscal years 1988 through 1991 for

payments to federal agencies and to states to cover certain income security, health, and education expenditures of authorized aliens legalized under the 1986 Act. The budget authority shown for grants to states is the $1 billion appropriation less an offset for certain spending of federal agencies. Any unspent funds remain available through fiscal year 1994. Outlays represent estimated state expenditures for legalized aliens who qualify for reimbursement under the grant program.

Health (Function 550)

No unusual assumptions apply to this function.

Medical Insurance (Function 570)

Hospital Insurance. The baseline projections for the Hospital Insurance component of Medicare after fiscal year 1988 are subject to uncertainties concerning future hospital reimbursements. The Social Security Amendments of 1983 instituted a prospective reimbursement system for inpatient hospital services under which patients are classified into 468 diagnosis-related groups (DRG). Hospitals are paid a fixed amount per DRG. The Omnibus Budget Reconciliation Act of 1986 set the DRG rates for 1987 and 1988. After 1988, the DRG rates are to be set by the Secretary of Health and Human Services, advised by an independent commission. For 1989 through 1992, the baseline assumes that DRG rates will grow by the increase in the cost of a market basket of goods and services typically purchased by hospitals. In addition, hospital insurance outlays also rise with projected increases in eligible beneficiaries and hospital utilization.

Income Security (Function 600)

Subsidized Housing Programs. The initial Section 8 rental assistance contracts--a large proportion of the number of contracts outstanding--will expire by 1992. In addition, the first of the new five-year vouchers will expire over the projection period. The baseline includes estimates of the funding required to keep these expiring agreements in force, adding about $24 billion to baseline budget authority in 1991 and $18 billion in 1992.

Refugee and Entrant Assistance. Spending for refugee assistance declines in the baseline because of a projected drop in the number of refugees entering the country, within the ceiling set by the State Department. Funding for targeted assistance was not provided in the 1987 continuing resolution because of a large carryover of funds from fiscal year 1986. Full funding is assumed in the baseline for fiscal years 1988 through 1992.

Civil Service Retirement (CSR). The baseline projections for this program reflect a new retirement system created for federal employees during 1986 as well as changes made to the Civil Service Retirement system. The Federal Employees' Retirement System Act of 1986 (Public Law 99-335) established the Federal Employees' Retirement System (FERS) for all employees hired after December 31, 1983. Participants in the Civil Service Retirement system will be given the option of joining FERS. Estimates for increased participation in FERS and decreased participation in CSR are reflected in the baseline projections.

Participants in FERS will receive benefits from Social Security, a defined-benefit retirement plan, and a thrift savings plan. Unlike CSR, FERS will be fully paid for by employees and employing agencies. Federal agencies will also match their employees' voluntary contributions to the thrift savings plan, up to a specific rate set by law. Agency contributions to Social Security, the defined benefit plan, and the thrift plan are recorded as outlays in the appropriate functions of the budget and are also shown (with a negative sign) as undistributed offsetting receipts in function 950. Employee contributions to and withdrawals from the thrift plan will appear in a separate account within function 600. Outlays for the new defined benefit plan will be paid from the Civil Service Retirement Trust Fund.

Federal Windfall Subsidy to the Rail Industry Pension. The Congress appropriates funds each year to provide special benefits to certain retired rail workers employed before 1975. The federal cost declines each year in proportion to the mortality of beneficiaries. The baseline shows the 1987 appropriation of $380 million declining to $320 million in 1992.

Social Security (Function 650)

No unusual assumptions apply to this function.

Veterans' Benefits and Services (Function 700)

Veterans' Compensation. The veterans' and survivors' compensation program is not indexed by law for inflation, but benefit levels historically have been adjusted through annual legislation to cover increases in the cost of living. The CBO baseline assumes that future increases in compensation will be enacted at the same percentage rate as for Social Security and veterans' pensions and will be effective with the January payment check each year.

All-Volunteer Force Educational Assistance Program (New GI Bill). The CBO baseline assumes reauthorization of this program before it expires in mid-1988. New enrollments in the Post-Vietnam Era Veterans' Educational Assistance Program (VEAP), suspended for the duration of the New GI Bill, were terminated in 1986 by Public Law 99-576.

Veterans' Job Training. The baseline assumes this program will expire; it is not authorized for 1987 and received no appropriation for the year. Prior obligations result in outlays for 1987 and 1988.

Loan Guaranty Revolving Fund. This entitlement program guarantees loans made by private lenders to veterans who meet the financial qualifications. The baseline outlays for the fund reflect the net default costs resulting from foreclosures of guaranteed loans. Baseline budget authority projections represent the amounts of any appropriations estimated to be required to ensure the solvency of the fund. Under current law, an origination fee of 1 percent of the loan principal is required on new loans guaranteed for non-service-disabled veterans. Although this provision is scheduled to expire after September 30, 1987, the CBO baseline assumes that the authority to impose the origination fee will be extended through the projection period.

Administration of Justice (Function 750)

The 1988 baseline budget authority for several accounts in this function exceeds the 1987 appropriation by more than the rate of inflation because of additional spending requirements imposed by recent legislation, including the Bankruptcy Judges, United States Trustees, and Family Farmer Bankruptcy Act of 1986 (Public Law 99-554); the Criminal Justice Act Revision of 1986 (Public Law 99-651); and the Immigration Reform and Control Act of 1986 (Public Law 99-603). In addition, the 1988 baseline budget authority for the Court Security account was increased by more than the rate of inflation to reflect the annualization of contract security officer positions authorized in fiscal year 1987. Budget authority for later years is projected by inflating the 1988 levels.

General Government (Function 800)

Official Mail Costs. Congressional postage fees are paid from this account. The CBO projection of mail costs is based on estimated usage and reflects historical patterns.

Federal Buildings Fund. This revolving fund finances the real property operations of the government. Space and services are provided to agencies by the General Services Administration (GSA), which is reimbursed by the agencies. Obligations and disbursements from the fund are subject to limitations on the availability of revenue imposed through the appropriation process. The CBO estimate of outlays is based on the sum of estimated outlays for property management and estimated receipts from the collection of standard-level user charges from agencies. By law, the user charges paid by agencies to GSA approximate commercial charges for comparable space and services. The baseline projections assume that user charges will equal commercial equivalent rates in 1988 and later years.

Compact of Free Association. The Compact of Free Association (Public Law 99-239) provides that the United States will make payments to the Federated States of Micronesia and the Republic of the Marshall Islands over the next 15 years. The baseline estimate of these payments is based on the amounts and schedule provided in the Compact. The Congress has also provided appropriations to fund the Compact of Free Association between The Republic of Palau and the United States; no outlays are included in the baseline, however, since this compact was not approved by the voters of Palau.

General Purpose Fiscal Assistance (Function 850)

Miscellaneous Permanent Appropriations for the Forest Service and Minerals Management Service. A portion of the receipts paid to the federal government for leasing rights and for logging on federal land is distributed to local units of government. The CBO bases its projections for these permanent appropriations on estimates of timber and mineral receipts, which are recorded in budget function 300.

Net Interest (Function 900)

The net interest function comprises interest on the public debt, interest received by certain trust funds, and other interest. The methodology for projecting net interest costs is described in a CBO special study, *Federal Debt and Interest Costs* (September 1984).

Allowances (Function 920)

The fiscal year 1987 estimates for function 920 represent the budget authority and outlays needed by civilian agencies to cover the cost of the 3 percent January 1987 pay raise. Civilian agencies are assumed to absorb

50 percent of this cost from existing funds. The 1987 estimates also assume that agencies will absorb all of the cost of the new Federal Employees Retirement System.

The 1988-1992 baseline projections for this function contain budget authority and outlays resulting from assumed pay rate increases for all federal employees of civilian agencies. The projections assume pay rate increases equal to the annual rate of growth in private-sector pay: 3.0 percent in January 1988, 4.8 percent in October 1988, 5.2 percent in October 1989, 5.8 percent in October 1990, and 5.7 percent in October 1991. The CBO assumes that additional appropriations are provided to cover these increases and that federal agencies will not be required to absorb any of the cost.

The baseline projections assume the scheduled expiration on September 30, 1988, of Section 811 of the Consolidated Omnibus Budget Reconciliation Act of 1985 (Public Law 99-272), which changed the effective date of pay raises from October to January for fiscal years 1986 through 1988; under this assumption the effective date for future pay raises reverts to October as of fiscal year 1989. These projections do not reflect the increase in the executive, legislative, and judicial pay ceiling proposed in the President's budget, which was transmitted after the CBO baseline was prepared.

The 1988-1992 costs of the January 1987 pay raise, the new Federal Employee Retirement System, and scheduled increases in the Social Security payroll tax are apportioned to the salary and expense accounts throughout the other functions of the budget. The baseline projections assume that budget authority will be increased to cover the full cost of this previously enacted legislation.

Undistributed Offsetting Receipts (Function 950)

Employer's Share, Employee Retirement. The government's contribution to employee retirement plans is assumed to grow in proportion to assumed pay rate increases and scheduled increases in contribution rates resulting from enactment of the Federal Employees' Retirement System Act of 1986. The new Federal Employees' Retirement System (FERS) requires higher contributions by agencies for their employees' retirement than did the Civil Service Retirement system, and, in addition, federal agencies will match their employees' voluntary contributions into a thrift savings plan up to a specified rate. Payments by agencies to FERS and the thrift plan are intrabudgetary transactions and have no effect on total budget outlays.

Agency contributions recorded in other budget functions are completely offset within function 950.

Military Retirement Contributions. The baseline projection for the government's contribution to the military retirement plan assumes a constant military personnel end strength, scheduled changes in contribution rates, and increases in proportion to assumed pay raises.

Outer Continental Shelf Receipts. Outer Continental Shelf (OCS) receipts consist of cash bonus bids from lease sales, annual rental payments, royalties on oil and gas production, and payments to the federal government resulting from the release of disputed OCS receipts from escrow accounts. Bonus receipts for fiscal years 1987 and 1988 are estimated on a sale-by-sale basis, reflecting bonus bids on previous offerings in the area in which a sale will occur, the Minerals Management Service (MMS) estimate of oil and gas reserves in the sale area, and CBO oil and gas price assumptions. Bonus receipts for subsequent years are assumed to remain at the 1988 level. Escrow releases depend on resolution of a case before the U.S. Supreme Court and negotiations between the State of Alaska and the Secretary of the Interior; timing of those releases is estimated based on information from the Department of the Interior and from the states concerned. Royalty receipt estimates are based on MMS projections of oil production and CBO projections of gas production and oil and gas prices.

BASELINE CREDIT PROJECTIONS

Credit activity is recorded in the budget baseline when an agency disburses funds for direct loans or for defaulted guaranteed loans, and when loan repayments are received. These outlays reflect neither the full extent of federal credit activities nor their true costs. A separate credit budget records the volume of direct loan obligations and loan guarantee commitments.

The credit budget comprises projections of the annual new direct loan obligations and new guaranteed loan commitments for each federal lending program. Some programs, such as Federal Housing Administration guarantees, are subject to limits imposed by annual appropriations acts; these loan limits are typically projected to maintain the base-year level, with adjustments for inflation. If CBO projects that loan demand will be below the appropriated limits, then lending is projected at the demand level. For all other lending programs, CBO uses the eligibility parameters

specified in authorizing legislation and expected borrower demand to project loan obligations and guarantee commitments.

The Balanced Budget Act required that an agency's transactions with the Federal Financing Bank (FFB) be recorded as agency, not FFB, spending. Previously, an FFB disbursement of new loans to agency-guaranteed borrowers was recorded as an FFB outlay; the agency recorded a guarantee loan commitment, with no current-year budget authority or outlay impact. In fiscal year 1987 and beyond, these transactions are explicitly recognized as outlays of the guaranteeing agency, financed by borrowing from the FFB.

APPENDIX B

BASELINE SPENDING AND CREDIT PROJECTIONS BY BUDGET FUNCTION

Five broad categories of outlays--defense, entitlements and other mandatory spending, nondefense discretionary spending, net interest, and offsetting receipts--used in the body of this report are designed to reflect the way in which the Congress has approached spending decisions in recent budget resolutions. In this appendix, federal spending and credit projections are classified according to 21 budget functions.

The Congressional Budget Act of 1974, as amended, requires the Congress to include estimates of budget authority, outlays, new direct loan obligations, and new guaranteed loan commitments for each major budget function in its annual budget resolutions. The functional classification is a means of presenting spending estimates in terms of the broad national needs that federal programs are intended to address. Within a function, the programmatic objectives may be achieved in a variety of ways, including spending from Congressional appropriations, loans to private borrowers, and spending from earmarked trust funds.

National needs are grouped into 18 broad budget functions ranging from national defense, international affairs, energy, and agriculture programs to education, health, income security, and general purpose fiscal assistance to state and local governments. The three remaining functions--net interest, allowances, and undistributed offsetting receipts--do not address national needs but are included to make the budget complete.

Some outlays are excluded from the on-budget totals by law. The Balanced Budget and Emergency Deficit Control Act of 1985 provides that the outlays (and revenues) of the Social Security trust funds are to be excluded from the on-budget aggregates. Outlays for the Social Security retirement, survivors, and disability programs are classified in budget function 650. Most spending in this function--representing the outlays of the Old-Age and Survivors Insurance and Disability Insurance trust funds for benefit payments, administrative expenses, and other miscellaneous costs--is treated as off-budget. Off-budget outlays in net interest (function 900) reflect the interest earned by the Social Security trust funds on their investments in Treasury securities, while the off-budget portion of function 950 (undistributed offsetting receipts) reflects the payroll tax paid by federal government agencies on behalf of workers covered under the program.

Since 1980, Congressional budget resolutions have also included a separate credit budget. The spending budget, which generally operates on a cash-flow basis, cannot accurately reflect the full impact of federal budgetary policies on the allocation of credit in the U.S. economy. In the spending budget, loans are recorded on a net basis--that is, new loans less repayments. Loan guarantees do not appear except in the case of a default. The credit budget remedies some of these shortfalls by presenting the gross amounts of new loans and loan guarantees. Most credit budget activity is concentrated in a few budget functions: international affairs, agriculture, commerce and housing credit, education, and veterans' programs.

The CBO baseline projections for budget authority, outlays, and credit are presented by budget function in Tables B-1, B-2, and B-3, respectively.

TABLE B-1. CBO BASELINE BUDGET AUTHORITY PROJECTIONS BY FUNCTION (By fiscal year, in billions of dollars)

Budget Function		1987 Base	Projections				
			1988	1989	1990	1991	1992
050	National Defense	284	302	316	330	345	361
150	International Affairs	16	18	23	20	20	21
250	General Science, Space, and Technology	12	11	11	12	12	13
270	Energy	5	6	7	7	7	7
300	Natural Resources and Environment	13	15	16	16	17	17
350	Agriculture	30	31	33	30	25	24
370	Commerce and Housing Credit	9	10	8	12	11	9
400	Transportation	27	30	30	31	32	33
450	Community and Regional Development	9	9	9	8	8	9
500	Education, Training, Employment, and Social Services	33	34	36	38	39	40
550	Health	41	45	48	52	57	61
570	Medicare	84	92	100	113	123	134
600	Income Security	158	168	175	183	216	219
650	Social Security						
	On-budget	5	5	6	6	5	6
	Off-budget	222	252	276	305	332	358
	Subtotal	227	257	282	310	337	363
700	Veterans' Benefits and Services	27	28	28	29	29	30
750	Administration of Justice	8	9	9	9	9	10
800	General Government	7	7	7	8	8	8
850	General Purpose Fiscal Assistance	2	2	2	2	2	2
900	Net Interest						
	On-budget	140	147	155	163	170	172
	Off-budget	-5	-6	-9	-12	-15	-19
	Subtotal	135	141	147	152	155	154
920	Allowances	0	1	3	5	8	10
950	Undistributed Offsetting Receipts						
	On-budget	-32	-35	-36	-38	-41	-43
	Off-budget	-3	-5	-6	-6	-7	-8
	Subtotal	-35	-40	-42	-45	-48	-51
On-budget subtotal		878	934	987	1,034	1,104	1,144
Off-budget subtotal		214	241	262	287	310	331
Total		1,091	1,174	1,249	1,321	1,414	1,475

Source: Congresional Budget Office.

TABLE B-2. CBO BASELINE OUTLAY PROJECTIONS BY FUNCTION
(By fiscal year, in billions of dollars)

Budget Function		1987 Base	Projections				
			1988	1989	1990	1991	1992
050	National Defense	280	290	303	317	332	346
150	International Affairs	13	16	16	16	16	17
250	General Science, Space, and Technology	9	11	11	12	12	12
270	Energy	3	5	5	5	5	6
300	Natural Resources and Environment	14	14	15	16	17	17
350	Agriculture	30	30	29	26	23	22
370	Commerce and Housing Credit	8	8	5	6	5	2
400	Transportation	25	28	29	30	31	31
450	Community and Regional Development	7	7	7	7	7	8
500	Education, Training, Employment, and Social Services	30	33	35	36	38	39
550	Health	41	44	48	52	56	61
570	Medicare	73	84	93	104	117	131
600	Income Security	124	131	139	145	154	163
650	Social Security						
	On-budget	5	5	6	6	5	6
	Off-budget	203	216	230	247	265	283
	Subtotal	208	221	236	252	270	288
700	Veterans' Benefits and Services	26	27	28	28	29	29
750	Administration of Justice	8	9	9	9	10	10
800	General Government	7	7	7	7	8	8
850	General Purpose Fiscal Assistance	2	2	2	2	2	2
900	Net Interest						
	On-budget	140	147	155	163	170	172
	Off-budget	-5	-6	-9	-12	-15	-19
	Subtotal	135	141	147	152	155	154
920	Allowances	0	1	3	5	8	11
950	Undistributed Offsetting Receipts						
	On-budget	-32	-35	-36	-38	-41	-43
	Off-budget	-3	-5	-6	-6	-7	-8
	Subtotal	-35	-40	-42	-45	-48	-51
On-budget subtotal		814	865	908	956	1,004	1,049
Off-budget subtotal		195	205	216	229	243	256
Total		1,008	1,069	1,124	1,184	1,247	1,305

Source: Congressional Budget Office.

TABLE B-3. CBO BASELINE CREDIT PROJECTIONS BY BUDGET FUNCTION (By fiscal year, in billions of dollars)

Budget Function			1986 Actual	1987 Base	Projections 1988	1989	1990	1991	1992
050	Defense	DL	1	0	0	0	0	0	0
150	International Affairs	DL	8	7	7	8	8	8	9
		PG	6	12	12	13	13	14	14
270	Energy	DL	3	3	2	3	3	3	3
		PG	0	2	0	0	0	0	0
300	Natural Resources and Environment	DL	a/	a/	a/	a/	a/	a/	a/
350	Agriculture	DL	21	21	18	17	16	14	14
		PG	4	8	9	9	9	9	10
370	Commerce and Housing Credit	DL	4	4	4	4	4	4	4
		PG	106	77	59	61	64	67	70
400	Transportation	DL	1	1	a/	a/	a/	a/	a/
		PG	a/	0	0	0	0	0	0
450	Community and Regional Development	DL	1	1	1	1	1	1	1
		PG	a/	a/	a/	a/	a/	a/	a/
500	Education, Training, Employment, and Social Services	DL	2	1	2	2	2	2	2
		PG	9	9	9	9	10	10	10
550	Health	DL	a/	a/	a/	a/	a/	a/	a/
		PG	a/	a/	a/	a/	a/	a/	a/
600	Income Security	DL	1	2	2	1	1	a/	a/
700	Veterans' Benefits and Services	DL	1	2	1	1	1	1	1
		PG	35	33	27	23	24	25	27
	Total	DL	43	42	38	37	35	34	34
		PG	160	141	116	117	121	126	131

SOURCE: Congressional Budget Office.

NOTES: DL = New direct loan obligations.
PG = New primary loan guarantee commitments.

a. Less than $500 million.

APPENDIX C

FEDERAL RECEIPTS AND EXPENDITURES IN THE NATIONAL INCOME AND PRODUCT ACCOUNTS

Both the budget and the federal sector of the National Income and Product Accounts (NIPA) measure the receipts and expenditures of the federal government. The national income accounts measure current income and production and are the most widely used indicator of current economic activity. As a rule, the NIPA federal sector is more useful than the budget for analyzing the economic impact of federal government activity. The NIPA estimates of federal government activity differ from those of the budget in four ways: timing of transactions, netting and grossing of receipts against spending, treatment of financial activities, and coverage.

Timing differences occur because the budget records transactions (except interest owed to the public) on a cash-paid or cash-received basis, while the NIPA federal sector may use a cash, accrual, or other basis, depending on the type of transaction. On the receipts side, the most important timing difference is the recording of corporate profit taxes in the NIPA at the time the tax liability is incurred, which may be months (or years) before the tax payment is deposited in the Treasury. On the expenditure side, the only major timing difference is that some large defense purchases are recorded in the NIPA at the time of delivery rather than at the time payment is made. Other timing differences are generally small.

Differences in netting and grossing arise because the budget treats certain types of receipts as offsets to outlays. For example, agency payments to the Civil Service Retirement Trust Fund and other federal employee benefit plans are counted as a negative outlay in the budget, exactly offsetting agency expenditures elsewhere. In the NIPA, this amount is added to both receipts and expenditures in order to provide a more accurate measure of personal income and outlays. Other netting and grossing adjustments in the NIPA are made for funds collected by the government in the course of business-type transactions--such as Medicare premiums, timber sales, and rents and royalties arising from the Outer Continental Shelf leases.

Lending and financial transactions that involve only the exchange of existing assets and liabilities are generally excluded from the NIPA, since they generate no current income or output. For example, the sale of a

governmental asset such as Conrail reduces the budget deficit but has no effect on the NIPA deficit. Similarly, direct lending by the Small Business Administration and other agencies is reflected in the budget but is excluded from the NIPA. Interest paid or received in the course of financial transactions, though, is reflected in the NIPA federal sector. The NIPA also records nonrecourse agricultural commodity loans as purchases of goods rather than lending.

Coverage differences largely reflect the exclusion of Puerto Rico, the Virgin Islands, and other territories for purposes of computing the gross national product and related data series in the NIPA.

The major differences between the budget and the federal sector in the NIPA are detailed in Table C-1. Since CBO's last report, a new reconciliation item has been added to the table. The Thrift Savings Plan established by the Federal Employees' Retirement System Act of 1986 (Public Law 99-335) is treated as a governmental fund in the budget. The NIPA, however, is likely to treat the Thrift Plan like private pension funds, which are considered part of the household sector. The budget, therefore, records agency contributions into the fund as intragovernmental payments and receipts, employee contributions as receipts from nonfederal sources, and disbursements from the fund as federal outlays. The NIPA, on the other hand, considers agency contributions to be a form of employee compensation (and, therefore, federal government purchases) and employee contributions and withdrawals to be private savings transactions. Excluding the receipts and disbursements of the Thrift Fund from the federal sector requires an additional reconciliation item which grows from $1 billion in 1987 to $3 billion by 1988.

Two major elements of the spending legislation adopted in October 1986 also affect the reconciliation table. Since the budget generally records transactions on a cash basis, both the delay of the final military paycheck of fiscal year 1987 into 1988 and the sale of governmental assets reduce the budget deficit. Since the NIPA records employee compensation on a accrual basis, the pay delay adds $3 billion to the 1987 defense timing adjustment. Proceeds of asset sales, as discussed above, are excluded from the NIPA, thereby reducing the 1987 financial exclusion by $8 billion. Table C-2 shows estimates of federal sector receipts and expenditures on a NIPA basis, consistent with the CBO baseline budget projections.

TABLE C-1.

RELATIONSHIP OF THE BUDGET TO THE FEDERAL SECTOR OF THE NATIONAL INCOME AND PRODUCT ACCOUNTS
(By fiscal year, in billions of dollars)

	1987 Base	Projections				
		1988	1989	1990	1991	1992
Receipts						
Total Revenues [a]	834	900	962	1,050	1,138	1,220
Differences						
Government contributions for employee retirement	35	40	44	47	50	54
Medicare premiums	7	8	9	9	10	11
Other netting and grossing	8	8	8	9	9	9
Geographic exclusions	-2	-2	-2	-2	-2	-2
Other	2	-2	1	4	1	1
Total Federal Sector NIPA Receipts	884	953	1,022	1,118	1,206	1,293
Expenditures						
Total Outlays [a]	1,008	1,069	1,124	1,184	1,247	1,305
Differences						
Lending and financial transactions	-9	-13	-9	-6	-4	-3
Government contributions for employee retirement	35	40	44	47	50	54
Medicare premiums	7	8	9	9	10	11
Other netting and grossing	8	8	8	9	9	9
Defense timing adjustment	10	3	3	3	3	3
Federal employee thrift savings fund	1	3	3	3	3	3
Bonuses on outer continental shelf land leases	2	1	[b]	[b]	[b]	[b]
Geographic exclusions	-6	-6	-6	-7	-7	-8
Other	-2	-3	-2	1	-2	-2
Total Federal Sector NIPA Expenditures	1,054	1,111	1,175	1,244	1,309	1,372

SOURCE: Congressional Budget Office.

a. Includes on-budget and off-budget activities.
b. Less than $500 million.

TABLE C-2.

PROJECTIONS OF BASELINE REVENUES AND EXPENDITURES ON A NATIONAL INCOME AND PRODUCT ACCOUNT BASIS
(By fiscal year, in billions of dollars)

	1987 Base	Projections				
		1988	1989	1990	1991	1992
Receipts						
Personal Tax and Nontax Receipts	365	386	416	462	505	548
Corporate Profits Tax Accruals	121	135	142	155	168	180
Indirect Business Tax and Nontax Accruals	54	54	55	56	59	61
Contributions for Social Insurance	345	377	409	443	475	504
Total Receipts	884	953	1,022	1,118	1,206	1,293
Expenditures						
Purchases of Goods and Services	384	392	409	429	450	471
Defense	291	295	309	323	339	354
Nondefense	93	97	100	106	111	117
Transfer Payments	408	439	471	506	543	582
Grants-in-Aid to State and Local Governments	101	107	114	120	127	134
Net Interest Paid	135	140	147	152	155	153
Subsidies Less Current Surplus of Government Enterprises	26	32	35	36	35	33
Total Expenditures	1,054	1,111	1,175	1,244	1,309	1,372
Deficit						
Deficit	170	158	153	126	103	79

SOURCE: Congressional Budget Office.

APPENDIX D

ANALYSIS OF CONGRESSIONAL BUDGET ESTIMATES

Under the Congressional Budget Act of 1974, as amended, the Congress adopts one or more concurrent resolutions setting forth a budget plan for the coming year. Starting in fiscal year 1987, the budget resolution must meet the deficit target specified in the Balanced Budget and Emergency Deficit Control Act (Public Law 99-177).

Since fiscal year 1980, the actual budget deficit has consistently exceeded the estimates contained in the budget resolutions, as shown in Table D-1. Table D-2 divides the misestimates for the first budget resolutions into four major categories:

- Economic Assumptions. Budget estimates may prove inaccurate if the economic assumptions on which they are based on are not borne out. An unexpectedly weak economy, for example, will reduce federal tax revenues and increase spending for unemployment compensation and welfare benefits.

- Legislative Assumptions. In drafting a budget resolution, the Budget Committees must make assumptions about the timing and likely effects of pending tax legislation and spending proposals. If the laws enacted differ from those assumed, the resolution estimates are likely to be inaccurate.

- Adminstrative Assumptions. Unanticipated regulatory and other administrative actions or inactions by federal agencies can cause unexpected increases or decreases in outlays and revenues.

- Technical Assumptions. Some differences between estimates and outcomes are the result of imprecise estimating methods and other factors that do not fit into the categories above. For example, no one can predict exactly how many people will apply for Social Security benefits next year or precisely how large payroll tax collections will be, even if the economic and legislative assumptions of the budget resolution are completely borne out.

TABLE D-1. CONGRESSIONAL BUDGET RESOLUTIONS AND ACTUAL BUDGET TOTALS (In billions of dollars)

Fiscal Year	Revenues	Outlays	Surplus or Deficit (-)
Fiscal Year 1976			
First resolution	298.2	367.0	-68.8
Second resolution	300.8	374.9	-74.1
Actual	299.2	364.8	-65.6
Fiscal Year 1977			
First resolution	362.5	413.3	-50.8
Second resolution	362.5	413.1	-50.6
Third resolution	347.7	417.5	-69.8
Third resolution amended	356.6	409.2	-52.6
Actual	356.9	401.9	-45.0
Fiscal Year 1978			
First resolution	396.3	461.0	-64.6
Second resolution	397.0	458.3	-61.3
Actual	401.1	449.9	-48.8
Fiscal Year 1979			
First resolution	447.9	498.8	-50.9
Second resolution	448.7	487.5	-38.8
Revised second resolution	461.0	494.5	-33.4
Actual	465.9	493.7	-27.7
Fiscal Year 1980			
First resolution	509.0	532.0	-23.0
Second resolution	517.8	547.6	-29.8
Revised second resolution	525.7	572.7	-47.0
Actual	520.1	579.6	-59.6
Fiscal Year 1981			
First resolution	613.8	613.6	0.2
Second resolution	605.0	632.4	-27.4
Revised second resolution	603.3	661.4	-58.0
Actual	602.6	660.5	-57.9
Fiscal Year 1982			
First resolution	657.8	695.4	-37.6
Revised second resolution	628.4	734.1	-105.7
Actual	617.8	728.4	-110.7

(Continued)

TABLE D-1. (Continued)

Fiscal Year	Revenues	Outlays	Surplus or Deficit (-)
Fiscal Year 1983			
First resolution	665.9	769.8	-103.9
Revised second resolution a/	604.3	807.4	-203.1
Actual	600.6	796.0	-195.4
Fiscal Year 1984			
First resolution b/	679.6	851.2	-171.6
Revised second resolution	672.9	845.6	-172.7
Actual	666.5	841.8	-175.3
Fiscal Year 1985			
First resolution c/	750.9	932.0	-181.2
Revised second resolution c/	736.5	935.9	-199.4
Revised second resolution d/	736.5	946.3	-209.8
Actual c/	734.1	936.8	-202.8
Actual d/	734.1	946.3	-212.3
Fiscal Year 1986			
First resolution d/	795.7	967.6	-171.9
Actual	769.1	989.8	-220.7
Fiscal Year 1987			
First resolution d/	852.4	995.0	-142.6

SOURCE: Congressional Budget Office.

NOTE: Actual totals have been adjusted where necessary to agree with the budgetary treatment of various items for the budget resolutions and may, therefore, differ from the totals shown elsewhere in this report. Data for fiscal year 1984 and earlier years exclude outlays (primarily Federal Financing Bank, Strategic Petroleum Reserve, and Postal Service) that were considered off-budget before enactment of the Balanced Budget and Emergency Deficit Control Act of 1985.

a. Outlays exclude amounts reserved pursuant to Section 2 of the Budget Act.
b. Adjusted for enactment of reserve fund programs.
c. On-budget only; see note.
d. On- and off-budget combined; see note.

The estimates for fiscal years 1980 through 1982 were described in detail in the CBO special study, *An Analysis of Congressional Budget Estimates for Fiscal Years 1980-1982* (June 1984). A forthcoming CBO report will provide details on the estimates for fiscal years 1983 through 1986.

Table D-2 shows that all four sources of error have tended to contribute to underestimating the federal deficit. The economic assumptions were too optimistic every year. (In 1982 and 1986, the budget resolution was based on Administration economic assumptions; in the other years, CBO or modified CBO assumptions were used). Inaccurate legislative and administrative assumptions each contributed to underestimating the deficit in every year but one. And the technical assumptions caused the deficit to exceed the estimate in all but two years.

The net effect of these four factors is a fairly consistent tendency to overestimate revenues and underestimate outlays. Actual revenues fell short of the budget resolution estimates in six years out of seven. Actual outlays exceeded the estimates with the same frequency. For both revenues and outlays, the outcomes differ from the estimates by an average of 3.5 percent. These errors are magnified in the deficit, which exceeded the estimates by an average of $48 billion, or by almost half.

TABLE D-2. SOURCES OF DIFFERENCES BETWEEN ACTUAL BUDGET TOTALS AND FIRST BUDGET RESOLUTION ESTIMATES FOR FISCAL YEARS 1980-1986 (In billions of dollars)

Differences	1980	1981	1982	1983	1984	1985	1986
Revenues							
Economic Assumptions	8.4	5.0	-51.9	-58.0	4.5	-20.0	-23.0
Legislative Assumptions	6.2	-3.7	13.0	-4.6	-13.7	-0.2	-1.5
Administrative Assumptions	--	--	--	--	--	--	--
Technical Assumptions	-3.5	-12.6	-1.1	-2.7	-3.9	3.3	-2.1
Total Differences	11.1	-11.2	-40.0	-65.3	-13.1	-16.8	-26.6
Outlays							
Economic Assumptions	12.4	6.4	24.1	0.5	7.1	-5.2	-12.1
Legislative Assumptions	12.4	17.9	1.1	15.6	1.6	19.1	11.8
Administrative Assumptions	7.2	6.6	0.1	2.0	-0.1	3.8	2.4
Technical Assumptions	15.6	16.0	7.7	8.1	-18.0	-12.9	20.1
Total Differences	47.6	46.9	32.9	26.2	-9.4	4.8	22.2
Deficit							
Economic Assumptions	4.0	1.4	76.0	58.5	2.7	14.8	10.9
Legislative Assumptions	6.2	21.6	-11.9	20.2	15.3	19.3	13.2
Administrative Assumptions	7.2	6.6	0.1	2.0	-0.1	3.8	2.4
Technical Assumptions	19.1	28.6	8.8	10.8	-14.1	-16.2	22.2
Total Differences	36.6	58.1	73.0	91.5	3.7	21.6	48.8

Source: Congressional Budget Office.

APPENDIX E

ESTIMATES OF POTENTIAL OUTPUT

This appendix briefly presents CBO's current estimates of potential output, based on GDP instead of GNP, and benchmarked to 1982 instead of 1972.

SPECIFICATION

Potential output, Y^*, was assumed to satisfy the Okun equation,

$$(1) \quad \ln(Y/Y^*) = a_1(U-U^*) + e,$$

where

Y = real GDP (1982 dollars)

U = civilian rate of unemployment,

U^* = stable-inflation rate of unemployment, 1/ and

e = disturbance term.

It was also assumed that Y^* grows smoothly over several subperiods of time according to

$$(2) \quad \ln(Y^*) = b_0 + b_1T53 + b_2T57 + b_3T60 + b_4T69 + b_5T73 + b_6T80 + b_7T81,$$

where the right-hand variables are separate time trends beginning at the cyclical peaks, 1953:2, 1957:3, 1960:2, 1969:4, 1973:4, 1980:1, and 1981:3, respectively. Substituting (2) into (1) yields:

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1. The series for the stable-inflation rate of unemployment was obtained from Robert J. Gordon, *Macroeconomics* (New York: Little, Brown, 1984), Appendix B, Table B2, Column 6.

$$(3)\quad \ln(Y) = \ln(Y^*) + a_1(U-U^*) + e$$

$$= b_0 + b_1 T53 + b_2 T57 + b_3 T60 + b_4 T69 + b_5 T73$$

$$+ b_6 T80 + b_7 T81 + a_1 (U-U^*) + e.$$

Potential output was calculated from the fitted values of equation (3), assuming that $U = U^*$ and $e = 0$.

The components of potential output growth also were calculated, based on the GDP identity,

$$(4)\quad Y = N(E/L)(L/N)(Y'/H')(H'/E')(E'/E)(Y/Y'),$$

where

Y = real GDP,

N = civilian population 16 years and older,

E = civilian employment (household survey),

L = civilian labor force,

Y′ = private nonfarm business output (less housing),

H′ = hours worked in the private nonfarm business sector, (establishment survey), and

E′ = employment in the private nonfarm business sector (establishment survey).

In each case, the regression equation was identical to (3) except for a different dependent variable. By this construction, the estimated growth rates of the components of potential output sum to the estimated growth rate of potential output.

REGRESSION RESULTS

Table E-1 presents the regression results for equation (3) and for the components of potential growth. In each case, the seven time-trend coefficients (multiplied by 100) are the potential growth rates of the

TABLE E-1. EQUATIONS FOR ESTIMATING POTENTIAL OUTPUT AND ITS COMPONENTS

Dependent Variable	Intercept	T53	T57	T60	T69	T73	T80	T81	(U-U*)
ln(Y)	7.2202	.0254	.0308	.0363	.0310	.0296	.0175	.0254	-.0194
	(1626)	(16.7)	(18.7)	(71.1)	(26.9)	(39.7)	(5.0)	(21.9)	(22.3)
ln(N)	4.6691	.0118	.0135	.0152	.0237	.0188	.0148	.0117	.0001
	(7149)	(52.8)	(55.8)	(202)	(140)	(172)	(29.0)	(68.9)	(0.7)
ln(E/L)	-.0532	.0003	-.0006	-.0006	-.0005	-.0001	-.0008	.0001	-.0107
	(154)	(2.9)	(4.5)	(14.8)	(5.2)	(1.0)	(2.9)	(0.7)	(158)
ln(L/N)	-.5389	.0064	-.0064	.0011	.0049	.0077	.0026	.0037	-.0013
	(198)	(6.8)	(6.3)	(3.6)	(6.9)	(16.8)	(1.2)	(5.2)	(2.5)
ln(Y´/H´)	2.4427	.0172	.0280	.0186	.0124	.0083	-.0112	.0137	-.0029
	(360)	(7.4)	(11.1)	(23.9)	(7.1)	(7.3)	(2.1)	(7.7)	(2.2)
ln(H´/E´)	.5743	-.0060	-.0008	.-0076	-.0053	-.0037	.0062	-.0005	-.0070
	(220)	(6.7)	(0.9)	(25.4)	(7.8)	(8.4)	(3.0)	(0.7)	(13.7)
ln(E´/E)	-.2086	.0027	-.0022	.0095	.0018	.0015	.0042	-.0002	-.0045
	(71.3)	(2.7)	(2.0)	(28.2)	(2.4)	(3.1)	(1.8)	(0.2)	(7.9)
ln(Y/Y´)	.3348	-.0070	-.0007	.0001	-.0061	-.0029	.0018	-.0031	.0069
	(140)	(8.6)	(0.8)	(0.3)	(9.8)	(7.3)	(0.9)	(5.0)	(14.7)
ln(E)	4.0771	.0185	.0065	.0157	.0281	.0265	.0166	.0155	-.0119
	(1390)	(18.5)	(6.0)	(46.6)	(37.0)	(53.7)	(7.2)	(20.2)	(20.7)
ln(Y/E)	3.1432	.0069	.0243	.0206	.0028	.0032	.0009	.0099	-.0075
	(540)	(3.5)	(11.3)	(30.8)	(1.9)	(3.2)	(0.2)	(6.5)	(6.6)

dependent variable from one cyclical peak to the next. In the case of the last time trend, the growth rate covers the 1981:3 to 1986:3 period. The bottom panel of Table E-1 divides the growth rate of potential output into only two components--the growth rate of employment and the growth rate of output per employed person.

According to the results in Table E-1, the exponential growth rate of potential output rises from 2.54 percent during 1953:2-1957:3 to 3.63 percent during 1960:2-1969:4. Then it declines steadily to only 1.75 percent during 1980:1-1981:3. For the 1981:3-1986:3 period, potential growth is estimated to be 2.54 percent. 2/ The rising growth rate between 1953:2-1957:3 and 1960:2-1969:4 reflects an improvement in the growth of output per employee (productivity), while the decline between 1960:2-1969:4 and 1980:1-1981:3 reflects a deterioration. The upturn in potential growth since 1981:3 is attributed to a rebound in productivity growth. Table E-2 presents the fiscal year estimates of nominal potential GNP, along with corresponding estimates of the standardized-employment deficit. 3/

CONCLUSION

There are many approaches to estimating potential output. 4/ The one presented in this Appendix is representative of those based on an Okun equation, and provides a breakdown of potential growth. 5/ Its major shortcoming is that the use of time trends fails to "explain" potential growth, and does not adequately take into account the time series properties of macroeconomic variables such as output and unemployment. Nevertheless, it does provide a benchmark level of output consistent with estimates of the stable-inflation rate of unemployment.

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2. These exponential growth rates differ slightly from the discrete-time growth rates reported in Chapter III.

3. Estimates of potential GNP are obtained by adding the difference between actual GNP and GDP to the estimates of potential GDP.

4. For estimates based on a production function that includes the capital stock, see Richard W. Kopcke, "Potential Growth, Productivity, and Capital Accumulation," Federal Reserve Bank of Boston, *New England Economic Review* (May/June 1980), pp. 22-41.

5. For comparison, see Thomas M. Holloway, "Okun's Law Revisited," Bureau of Economic Analysis, Discussion Paper 4 (May 1986).

TABLE E-2. HISTORICAL ESTIMATES OF POTENTIAL GNP AND THE STANDARDIZED EMPLOYMENT DEFICIT

Fiscal Years	Potential GNP (In Billions of Dollars)	Stable-Inflation Rate of Unemployment	Standardized Employment Deficit (-)	
			In Billions of Dollars	As Percent of Potential GNP
1956	408.3	5.1	2.5	0.6
1957	434.6	5.1	2.7	0.6
1958	459.4	5.0	1.7	0.4
1959	484.0	5.1	-9.5	-2.0
1960	510.6	5.2	2.8	0.6
1961	534.8	5.2	3.4	0.6
1962	564.6	5.3	-2.9	-0.5
1963	596.6	5.4	-0.8	-0.1
1964	627.8	5.5	-4.7	-0.8
1965	665.0	5.6	-2.6	-0.4
1966	709.3	5.6	-11.2	-1.6
1967	760.5	5.6	-17.0	-2.2
1968	816.4	5.6	-34.5	-4.2
1969	892.3	5.6	-7.8	-0.9
1970	976.7	5.6	-6.8	-0.7
1971	1,060.7	5.7	-19.8	-1.9
1972	1,155.4	5.8	-19.8	-1.7
1973	1,252.9	5.8	-21.7	-1.7
1974	1,398.4	5.9	-11.0	-0.8
1975	1,584.7	6.0	-32.9	-2.1
1976	1,771.0	6.0	-46.5	-2.6
1977	1,975.8	6.0	-34.6	-1.8
1978	2,178.4	5.9	-53.3	-2.4
1979	2,447.5	5.9	-39.9	-1.6
1980	2,733.8	5.9	-51.6	-1.9
1981	3,054.9	6.0	-49.4	-1.6
1982	3,357.2	6.0	-55.0	-1.6
1983	3,580.5	6.0	-112.7	-3.1
1984	3,811.0	6.0	-136.2	-3.6
1985	4,035.2	6.0	-175.5	-4.3
1986	4,255.2	6.0	-186.7	-4.4

SOURCES: Congressional Budget Office and Robert J. Gordon, *Macroeconomics* (New York: Little, Brown, 1984), Appendix B, Table B2, Column 6.

APPENDIX F

HISTORICAL BUDGET DATA

The budget policies of the federal government and the role of the budget in the national economy have changed in many ways over the past 25 years. Examining historical trends in revenues, outlays, and federal debt and comparing them with projected levels provide a framework for analyzing some of these changes. Actual budget data for fiscal years 1962 through 1986, both in nominal dollars and as a percent of gross national product (GNP), are provided in Tables F-1 through F-8.

Federal revenues, outlays, deficit or surplus, and debt held by the public are shown in Tables F-1 and F-2. Revenues and outlays contain both on- and off-budget components. All federal government receipts and outlays are on-budget except those for Social Security, which appear off-budget. Social Security is excluded from the on-budget aggregates under provisions of the Balanced Budget and Emergency Deficit Control Act of 1985. The act specifies, though, that the total deficit--including Social Security--be considered in determining whether the federal government is likely to exceed the statutory deficit targets. The amount of the total deficit is also critical in establishing the federal government's borrowing requirements. Debt held by the public represents the amount borrowed by the federal government over the years, and it increases each year by roughly the amount of the total deficit.

The major sources of federal revenue (including off-budget revenues) are presented in Tables F-3 and F-4. These sources are individual and corporate income taxes, social insurance taxes and contributions, excise taxes, estate and gift taxes, customs duties, and miscellaneous receipts. Social insurance taxes and contributions include employer and employee contributions for Social Security, Medicare, Railroad Retirement, unemployment insurance, and pension contributions by federal workers. Excise taxes are levied on certain products and services, such as gasoline, alcohol, and air travel. Since 1980, excise taxes have included windfall profit taxes on domestic oil producers. Miscellaneous receipts consist mainly of deposits of earning by the Federal Reserve System.

Total on- and off-budget outlays for major spending categories are shown in Tables F-5 and F-6. These categories are national defense, entitlements and other mandatory spending, nondefense discretionary spending, net interest, and offsetting receipts.

National defense and **net interest** are identical to the budget functions with the same titles (budget functions 050 and 900, respectively). The historical data for national defense have been adjusted to include imputed accruals for military retirement and are consistent with the definition of national defense used in the baseline projections.

Entitlements and other mandatory spending include programs for which spending is governed by laws making all who meet certain requirements eligible to receive payments. (Additional detail on entitlement spending is found in Tables D-7 and D-8). Many entitlement programs require that recipients have incomes below a certain level. The largest such means-tested program is Medicaid. Other means-tested entitlements include Food Stamps, Aid to Families with Dependent Children, and Supplemental Security Income.

Most entitlement programs are not means-tested--Social Security and Medicare being the largest such programs. Other retirement and disability programs include federal civilian and military retirement, Railroad Retirement, payments to disabled coal miners, and several smaller programs. Unemployment compensation, another non-means-tested program, is especially large during recessions, such as the one in 1981 and 1982. Other non-means-tested entitlements include farm price supports, general revenue sharing, revolving funds such as the Federal Deposit Insurance Corporation, and a large number of smaller trust funds.

Nondefense discretionary spending consists of all programs, other than defense and entitlements, controlled through the appropriation process. Examples include most direct federal spending for energy, the administration of justice, foreign economic and military aid, space, and natural resources. Federal grants-in-aid to state and local governments for transportation, education, housing, and community development are also considered to be discretionary.

Offsetting receipts include the federal government's contribution toward employee retirement, fees and charges such as Medicare premiums, and receipts from the use of federally controlled land and offshore territory. The bulk of these receipts from the use of federal property are rents and royalties from oil, gas, and other mineral development and proceeds from timber and power sales.

TABLE F-1. REVENUES, OUTLAYS, DEFICITS, AND DEBT HELD BY THE PUBLIC, FISCAL YEARS 1962-1986
(In billions of dollars)

Fiscal Year	Revenues			Outlays			Deficit (-) or Surplus	Debt Held by the Public
	On-Budget	Off-Budget	Total	On-Budget	Off-Budget	Total		
1962	87.4	12.3	99.7	93.3	13.5	106.8	-7.1	248.4
1963	92.4	14.2	106.6	96.4	15.0	111.3	-4.8	254.5
1964	96.2	16.4	112.6	102.8	15.7	118.5	-5.9	257.6
1965	100.1	16.7	116.8	101.7	16.5	118.2	-1.4	261.6
1966	111.7	19.1	130.8	114.8	19.7	134.5	-3.7	264.7
1967	124.4	24.4	148.8	137.0	20.4	157.5	-8.6	267.5
1968	128.1	24.9	153.0	155.8	22.3	178.1	-25.2	290.6
1969	157.9	29.0	186.9	158.4	25.2	183.6	3.2	279.5
1970	159.3	33.5	192.8	168.0	27.6	195.6	-2.8	284.9
1971	151.3	35.8	187.1	177.3	32.8	210.2	-23.0	304.3
1972	167.4	39.9	207.3	193.8	36.9	230.7	-23.4	323.8
1973	184.7	46.1	230.8	200.1	45.6	245.7	-14.9	343.0
1974	209.3	53.9	263.2	217.3	52.1	269.4	-6.1	346.1
1975	216.6	62.5	279.1	271.9	60.4	332.3	-53.2	396.9
1976	231.7	66.4	298.1	302.2	69.6	371.8	-73.7	480.3
1977	278.7	76.8	355.6	328.5	80.7	409.2	-53.6	551.8
1978	314.2	85.4	399.6	369.1	89.7	458.7	-59.2	610.9
1979	365.3	98.0	463.3	403.5	100.0	503.5	-40.2	644.6
1980	403.9	113.2	517.1	476.6	114.3	590.9	-73.8	715.1
1981	469.1	130.2	599.3	543.0	135.2	678.2	-78.9	794.4
1982	474.3	143.5	617.8	594.3	151.4	745.7	-127.9	929.4
1983	453.2	147.3	600.6	661.2	147.1	808.3	-207.8	1,141.8
1984	500.4	166.1	666.5	686.0	165.8	851.8	-185.3	1,312.6
1985	547.9	186.2	734.1	769.5	176.8	946.3	-212.3	1,509.9
1986	568.9	200.2	769.1	806.3	183.5	989.8	-220.7	1,745.6

SOURCE: Congressional Budget Office.

TABLE F-2. REVENUES, OUTLAYS, DEFICITS, AND DEBT HELD BY THE PUBLIC, FISCAL YEARS 1962-1986
(As a percent of GNP)

Fiscal Year	Revenues			Outlays			Deficit (-) or Surplus	Debt Held by the Public
	On-Budget	Off-Budget	Total	On-Budget	Off-Budget	Total		
1962	15.7	2.2	17.9	16.8	2.4	19.2	-1.3	44.6
1963	15.7	2.4	18.1	16.4	2.5	18.9	-0.8	43.2
1964	15.3	2.6	17.9	16.3	2.5	18.8	-0.9	40.9
1965	14.9	2.5	17.3	15.1	2.5	17.6	-0.2	38.8
1966	15.1	2.6	17.7	15.5	2.7	18.2	-0.5	35.7
1967	15.7	3.1	18.8	17.3	2.6	19.8	-1.1	33.7
1968	15.0	2.9	17.9	18.3	2.6	20.9	-3.0	34.1
1969	17.0	3.1	20.1	17.0	2.7	19.8	0.3	30.1
1970	16.1	3.4	19.5	17.0	2.8	19.8	-0.2	28.8
1971	14.3	3.4	17.7	16.8	3.1	19.9	-2.2	28.8
1972	14.5	3.5	18.0	16.8	3.2	20.0	-2.0	28.1
1973	14.4	3.6	18.0	15.6	3.5	19.1	-1.2	26.7
1974	14.8	3.8	18.6	15.3	3.7	19.0	-0.4	24.4
1975	14.2	4.1	18.3	17.8	4.0	21.8	-3.5	26.1
1976	13.6	3.9	17.5	17.8	4.1	21.9	-4.3	28.3
1977	14.4	4.0	18.4	17.0	4.2	21.1	-2.8	28.5
1978	14.5	3.9	18.4	17.0	4.1	21.1	-2.7	28.1
1979	14.9	4.0	18.9	16.5	4.1	20.5	-1.6	26.3
1980	15.1	4.2	19.4	17.9	4.3	22.2	-2.8	26.8
1981	15.7	4.4	20.1	18.2	4.5	22.7	-2.6	26.6
1982	15.1	4.6	19.7	18.9	4.8	23.7	-4.1	29.6
1983	13.6	4.4	18.1	19.9	4.4	24.3	-6.3	34.4
1984	13.5	4.5	18.0	18.6	4.5	23.1	-5.0	35.5
1985	13.9	4.7	18.6	19.5	4.5	24.0	-5.4	38.4
1986	13.7	4.8	18.5	19.4	4.4	23.8	-5.3	41.9

SOURCE: Congressional Budget Office.

TABLE F-3. REVENUES BY MAJOR SOURCE, FISCAL YEARS 1962-1986
(In billions of dollars)

Fiscal Year	Individual Income Taxes	Corporate Income Taxes	Social Insurance Taxes and Contributions	Excise Taxes	Estate and Gift Taxes	Customs Duties	Miscellaneous Receipts	Total Revenues
1962	45.6	20.5	17.0	12.5	2.0	1.1	0.8	99.7
1963	47.6	21.6	19.8	13.2	2.2	1.2	1.0	106.6
1964	48.7	23.5	22.0	13.7	2.4	1.3	1.1	112.6
1965	48.8	25.5	22.2	14.6	2.7	1.4	1.6	116.8
1966	55.4	30.1	25.5	13.1	3.1	1.8	1.9	130.8
1967	61.5	34.0	32.6	13.7	3.0	1.9	2.1	148.8
1968	68.7	28.7	33.9	14.1	3.1	2.0	2.5	153.0
1969	87.2	36.7	39.0	15.2	3.5	2.3	2.9	186.9
1970	90.4	32.8	44.4	15.7	3.6	2.4	3.4	192.8
1971	86.2	26.8	47.3	16.6	3.7	2.6	3.9	187.1
1972	94.7	32.2	52.6	15.5	5.4	3.3	3.6	207.3
1973	103.2	36.2	63.1	16.3	4.9	3.2	3.9	230.8
1974	119.0	38.6	75.1	16.8	5.0	3.3	5.4	263.2
1975	122.4	40.6	84.5	16.6	4.6	3.7	6.7	279.1
1976	131.6	41.4	90.8	17.0	5.2	4.1	8.0	298.1
1977	157.6	54.9	106.5	17.5	7.3	5.2	6.5	355.6
1978	181.0	60.0	121.0	18.4	5.3	6.6	7.4	399.6
1979	217.8	65.7	138.9	18.7	5.4	7.4	9.3	463.3
1980	244.1	64.6	157.8	24.3	6.4	7.2	12.7	517.1
1981	285.9	61.1	182.7	40.8	6.8	8.1	13.8	599.3
1982	297.7	49.2	201.5	36.3	8.0	8.9	16.2	617.8
1983	288.9	37.0	209.0	35.3	6.1	8.7	15.6	600.6
1984	298.4	56.9	239.4	37.4	6.0	11.4	17.0	666.5
1985	334.5	61.3	265.2	36.0	6.4	12.1	18.5	734.1
1986	349.0	63.1	283.9	32.9	7.0	13.3	19.9	769.1

SOURCE: Congressional Budget Office.

TABLE F-4. REVENUES BY MAJOR SOURCE, FISCAL YEARS 1962-1986 (As a percent of GNP)

Fiscal Year	Individual Income Taxes	Corporate Income Taxes	Social Insurance Taxes and Contributions	Excise Taxes	Estate and Gift Taxes	Customs Duties	Miscellaneous Receipts	Total Revenues
1962	8.2	3.7	3.1	2.3	0.4	0.2	0.2	17.9
1963	8.1	3.7	3.4	2.2	0.4	0.2	0.2	18.1
1964	7.7	3.7	3.5	2.2	0.4	0.2	0.2	17.9
1965	7.2	3.8	3.3	2.2	0.4	0.2	0.2	17.3
1966	7.5	4.1	3.4	1.8	0.4	0.2	0.3	17.7
1967	7.8	4.3	4.1	1.7	0.4	0.2	0.3	18.8
1968	8.1	3.4	4.0	1.7	0.4	0.2	0.3	17.9
1969	9.4	3.9	4.2	1.6	0.4	0.2	0.3	20.1
1970	9.1	3.3	4.5	1.6	0.4	0.2	0.3	19.5
1971	8.2	2.5	4.5	1.6	0.4	0.2	0.4	17.7
1972	8.2	2.8	4.6	1.3	0.5	0.3	0.3	18.0
1973	8.0	2.8	4.9	1.3	0.4	0.2	0.3	18.0
1974	8.4	2.7	5.3	1.2	0.4	0.2	0.4	18.6
1975	8.0	2.7	5.5	1.1	0.3	0.2	0.4	18.3
1976	7.7	2.4	5.3	1.0	0.3	0.2	0.5	17.5
1977	8.1	2.8	5.5	0.9	0.4	0.3	0.3	18.4
1978	8.3	2.8	5.6	0.8	0.2	0.3	0.3	18.4
1979	8.9	2.7	5.7	0.8	0.2	0.3	0.4	18.9
1980	9.1	2.4	5.9	0.9	0.2	0.3	0.5	19.4
1981	9.6	2.0	6.1	1.4	0.2	0.3	0.5	20.1
1982	9.5	1.6	6.4	1.2	0.3	0.3	0.5	19.7
1983	8.7	1.1	6.3	1.1	0.2	0.3	0.5	18.1
1984	8.1	1.5	6.5	1.0	0.2	0.3	0.5	18.0
1985	8.5	1.6	6.7	0.9	0.2	0.3	0.5	18.6
1986	8.4	1.5	6.8	0.8	0.2	0.3	0.5	18.5

SOURCE: Congressional Budget Office.

TABLE F-5. OUTLAYS FOR MAJOR SPENDING CATEGORIES, FISCAL YEARS 1962-1986
(In billions of dollars)

Fiscal Year	National Defense	Entitlements and Other Mandatory Spending	Nondefense Discretionary Spending	Net Interest	Offsetting Receipts	Total Outlays
1962	52.3	31.3	23.3	6.9	-7.0	106.8
1963	53.4	33.7	24.6	7.7	-8.1	111.3
1964	54.8	35.0	28.4	8.2	-7.8	118.5
1965	50.6	35.3	31.8	8.6	-8.0	118.2
1966	58.1	38.0	37.6	9.4	-8.5	134.5
1967	71.4	46.0	40.1	10.3	-10.3	157.5
1968	81.9	52.7	43.2	11.1	-10.8	178.1
1969	82.5	59.2	40.3	12.7	-11.1	183.6
1970	81.7	67.1	44.2	14.4	-11.6	195.6
1971	78.9	81.7	49.0	14.8	-14.2	210.2
1972	79.2	95.4	54.9	15.5	-14.2	230.7
1973	76.7	111.5	58.3	17.3	-18.1	245.7
1974	79.3	125.2	64.7	21.4	-21.3	269.4
1975	86.5	157.2	83.9	23.2	-18.5	332.3
1976	89.6	183.8	91.4	26.7	-19.8	371.8
1977	97.2	199.2	104.5	29.9	-21.6	409.2
1978	104.5	219.5	122.3	35.4	-23.0	458.7
1979	116.3	237.9	132.7	42.6	-26.1	503.5
1980	134.0	280.6	154.2	52.5	-30.4	590.9
1981	157.5	323.5	167.7	68.7	-39.3	678.2
1982	185.3	359.8	152.7	85.0	-37.2	745.7
1983	209.9	401.2	153.6	89.8	-46.1	808.3
1984	227.4	397.0	161.7	111.1	-45.3	851.8
1985	252.7	440.2	172.0	129.4	-48.0	946.3
1986	273.4	457.3	170.3	136.0	-47.1	989.8

SOURCE: Congressional Budget Office.

TABLE F-6. OUTLAYS FOR MAJOR SPENDING CATEGORIES, FISCAL YEARS 1962-1986
(As a percent of GNP)

Fiscal Year	National Defense	Entitlements and Other Mandatory Spending	Nondefense Discretionary Spending	Net Interest	Offsetting Receipts	Total Outlays
1962	9.4	5.6	4.2	1.2	-1.3	19.2
1963	9.1	5.7	4.2	1.3	-1.4	18.9
1964	8.7	5.6	4.5	1.3	-1.2	18.8
1965	7.5	5.2	4.7	1.3	-1.2	17.6
1966	7.8	5.1	5.1	1.3	-1.2	18.2
1967	9.0	5.8	5.1	1.3	-1.3	19.8
1968	9.6	6.2	5.1	1.3	-1.3	20.9
1969	8.9	6.4	4.3	1.4	-1.2	19.8
1970	8.2	6.8	4.5	1.5	-1.2	19.8
1971	7.5	7.7	4.6	1.4	-1.3	19.9
1972	6.9	8.3	4.8	1.3	-1.2	20.0
1973	6.0	8.7	4.5	1.3	-1.4	19.1
1974	5.6	8.8	4.6	1.5	-1.5	19.0
1975	5.7	10.3	5.5	1.5	-1.2	21.8
1976	5.3	10.8	5.4	1.6	-1.2	21.9
1977	5.0	10.3	5.4	1.5	-1.1	21.1
1978	4.8	10.1	5.6	1.6	-1.1	21.1
1979	4.7	9.7	5.4	1.7	-1.1	20.5
1980	5.0	10.5	5.8	2.0	-1.1	22.2
1981	5.3	10.8	5.6	2.3	-1.3	22.7
1982	5.9	11.5	4.9	2.7	-1.2	23.7
1983	6.3	12.1	4.6	2.7	-1.4	24.3
1984	6.2	10.7	4.4	3.0	-1.2	23.1
1985	6.4	11.2	4.4	3.3	-1.2	24.0
1986	6.6	11.0	4.1	3.3	-1.1	23.8

SOURCE: Congressional Budget Office.

TABLE F-7. OUTLAYS FOR ENTITLEMENTS AND OTHER MANDATORY SPENDING, FISCAL YEARS 1962-1986
(In billions of dollars)

Fiscal Year	Medicaid	Other Means-Tested Programs	Social Security	Medicare	Other Retirement and Disability	Unemployment Compensation	Other Non-Means-Tested Programs	Total Entitlements and Other Mandatory Spending
1962	0.1	4.2	14.1	---	2.6	3.8	6.4	31.3
1963	0.2	4.6	15.5	---	2.9	3.8	6.7	33.7
1964	0.2	4.8	16.3	---	3.3	3.6	6.8	35.0
1965	0.3	5.0	17.1	---	3.5	3.0	6.4	35.3
1966	0.8	5.0	20.2	0.0	4.1	2.4	5.5	38.0
1967	1.2	5.0	21.3	3.2	4.8	2.5	7.9	46.0
1968	1.8	5.7	23.0	5.1	5.7	2.4	9.1	52.7
1969	2.3	6.4	26.5	6.3	5.2	2.6	10.0	59.2
1970	2.7	7.4	29.4	6.8	6.6	3.4	10.8	67.1
1971	3.4	10.0	34.8	7.5	8.2	6.2	11.6	81.7
1972	4.6	11.7	39.0	8.4	9.5	7.1	15.0	95.4
1973	4.6	11.5	47.9	9.0	11.5	5.4	21.7	111.5
1974	5.8	13.9	54.5	10.8	13.6	6.1	20.5	125.2
1975	6.8	18.9	63.1	14.1	16.4	13.5	24.4	157.2
1976	8.6	22.2	72.2	17.0	18.6	19.5	25.8	183.8
1977	9.9	24.0	83.2	20.7	21.2	15.3	25.0	199.2
1978	10.7	25.3	91.8	25.0	23.2	11.8	31.7	219.5
1979	12.4	27.1	101.9	28.9	27.3	10.7	29.5	237.9
1980	14.0	32.6	117.1	33.9	31.5	18.0	33.4	280.6
1981	16.8	37.8	138.0	41.3	36.6	19.7	33.4	323.5
1982	17.4	38.1	154.1	49.2	39.8	23.7	37.6	359.8
1983	19.0	40.6	168.6	55.5	42.0	31.5	44.0	401.2
1984	20.1	41.6	176.1	61.0	43.3	18.4	36.5	397.0
1985	22.7	43.7	186.5	69.8	44.0	17.5	56.0	440.2
1986	25.0	45.3	196.7	74.2	46.6	17.8	51.7	457.3

SOURCE: Congressional Budget Office.

TABLE F-8. OUTLAYS FOR ENTITLEMENTS AND OTHER MANDATORY SPENDING, FISCAL YEARS 1962-1986
(As a percent of GNP)

Fiscal Year	Medicaid	Other Means-Tested Programs	Social Security	Medicare	Other Retirement and Disability	Unemployment Compensation	Other Non-Means-Tested Programs	Total Entitlements and Other Mandatory Spending
1962	0.0	0.8	2.5	---	0.5	0.7	1.1	5.6
1963	0.0	0.8	2.6	---	0.5	0.6	1.1	5.7
1964	0.0	0.8	2.6	---	0.5	0.6	1.1	5.6
1965	0.0	0.7	2.5	---	0.5	0.4	1.0	5.2
1966	0.1	0.7	2.7	0.0	0.6	0.3	0.7	5.1
1967	0.1	0.6	2.7	0.4	0.6	0.3	1.0	5.8
1968	0.2	0.7	2.7	0.6	0.7	0.3	1.1	6.2
1969	0.2	0.7	2.9	0.7	0.6	0.3	1.1	6.4
1970	0.3	0.7	3.0	0.7	0.7	0.3	1.1	6.8
1971	0.3	0.9	3.3	0.7	0.8	0.6	1.1	7.7
1972	0.4	1.0	3.4	0.7	0.8	0.6	1.3	8.3
1973	0.4	0.9	3.7	0.7	0.9	0.4	1.7	8.7
1974	0.4	1.0	3.8	0.8	1.0	0.4	1.4	8.8
1975	0.4	1.2	4.1	0.9	1.1	0.9	1.6	10.3
1976	0.5	1.3	4.2	1.0	1.1	1.1	1.5	10.8
1977	0.5	1.2	4.3	1.1	1.1	0.8	1.3	10.3
1978	0.5	1.2	4.2	1.1	1.1	0.5	1.5	10.1
1979	0.5	1.1	4.2	1.2	1.1	0.4	1.2	9.7
1980	0.5	1.2	4.4	1.3	1.2	0.7	1.3	10.5
1981	0.6	1.3	4.6	1.4	1.2	0.7	1.1	10.8
1982	0.6	1.2	4.9	1.6	1.3	0.8	1.2	11.5
1983	0.6	1.2	5.1	1.7	1.3	0.9	1.3	12.1
1984	0.5	1.1	4.8	1.6	1.2	0.5	1.0	10.7
1985	0.6	1.1	4.7	1.8	1.1	0.4	1.4	11.2
1986	0.6	1.1	4.7	1.8	1.1	0.4	1.2	11.0

SOURCE: Congressional Budget Office.

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